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Report of the Botanical Exploration of Southwestern Virginia During the Season of 1892.

By John K. Small and Anna Murray Vail.

The term Southwestern Virginia is a rather vague expression and to the majority of botanists it does not by any means convey its real significance. Occasionally it is met with in botanical text-books or on the labels of some collector who has made a limited excursion into that region. On an ordinary geographical map this tract of country appears quite small, and it is not until one enters it that it is realized how vast and important, as well as interesting, the district really is.

Early in the spring of 1892 several members of the Torrey Botanical Club planned an extended excursion to the border-land of Southwestern Virginia and North Carolina. Entering the field through the Valley of Virginia, on the sixteenth day of May, they selected Marion, the court house of Smyth County, as a centre from which exploring trips could be made.

Marion lies in and near the lower end of the great Valley of Virginia, which forms a more or less natural boundary between the Blue Ridge on the east and the Alleghany Mountains on the west. The territory visited lay close to the North Carolina State line, and the ground that was most thoroughly explored was that within a radius of about twenty miles from Marion, though a number of excursions to more distant localities and points of special prominence were made at intervals. Marion is situated near the Virginia and North Carolina boundary line, which, besides being

a political limit, has always been made a conventional line between the northern and southern floras of the States east of the Mississippi river, or the temperate region of eastern North America.

Although contiguous, the mountains of North Carolina and Virginia are of two very different types, and any one accustomed to collecting in the wilderness of the western portions of the former State is immediately struck with the great topographical difference between the two regions. In the tract of country under consideration the mountain ridges and valleys are usually long, although much varying in length, and run in nearly parallel lines, whereas in North Carolina, in place of the parallel system, there is a mass of short ridges and peaks thrown together in all conceivable positions and at every possible angle and relation to one another. As can naturally be inferred, there is considerable dissimilarity in the floras of the two tracts. The conventional line between the two states is by no means absolute, and there is much overlapping and intergrading of their respective floras. This was especially observed, and it furnished many facts concerning the geographical distribution of species.

The two factors that have exerted the greatest influence in producing such an extensive flora as there exists are the varied character of the contour of the region and the variety of the geological formations of its valleys and its mountain ranges, which latter are the Blue Ridge, the Alleghanies and the Cumberland Mountains. As to the former, there are all conditions of erosion and varying altitudes ranging from the valleys, some of which are 2,000 feet above the level of the sea, to ridges 5,000 feet and peaks nearly 6,000 feet in height. The latter factor's influence can readily be understood when we consider both the restricted and extensive limestone valleys followed by thick strata of the different sedimentary rocks on the mountain slopes and ending with the granite or gneiss of the higher peaks, each formation supporting a greater or less number of peculiar species and varieties. In addition to these there are two other factors, the climatic and meteorological conditions as they prevail there. They may not exert as much power in enlarging the flora as in rendering it as luxuriant as it is. The temperature seems to be just about the requisite degree, seldom so hot as to produce exces-

sive transpiration, seldom so cool as to do harm. The rainfall is large, seemingly excessive in some of the mountains, but favorable to the growth of the majority of plants, while those preferring drier situations are found on the more open and plain-like plateaus or on the southern slopes of many of the mountains. These latter remain peculiarly dry notwithstanding the large rainfall.

In consequence of these agents, there exists, especially on the mountains, an extraordinarily prolific growth of plants. Not only are the smaller phanerogams, the ferns, the mosses and the lower cryptogams remarkably well developed, but the mountains and valleys are clothed with magnificent, in some instances almost primeval, forests.

Local Geography.

Towards the east and southeast, in fact just on the limits of the town of Marion, lie the foot-hills of the Blue Ridge. These consist of a chain of peculiar and striking "knobs" reaching an altitude of about 2,600 feet. Immediately behind them is the first ridge of the range, called Pond Mountain. The highest point attained there is 3,400 feet. East of the northern end of Pond Mountain, and more or less connected with it, is Brushy Mountain, whose altitude exceeds that of the former ridge by 200 feet. Beyond this the country is more open for a short distance, forming thus the Valley of the South Fork of the Holston River.*

Rising abruptly from the valley is the massive ridge of the Iron Mountains, with its many lofty spurs and out-lying peaks, which ascend as high as 4,900 feet. The culmination of altitude is reached in the next short but stately elevation, for on either end of this ridge are situated two most conspicuous peaks, Mt. Rogers and White Top Mountain, the highest points in Virginia, the former 5,719 feet and the latter only 41 feet lower. After these summits are passed, the country gradually decreases in altitude until the narrow and cañon-like valley of the New River is reached. This stream has cut down its valley until now it flows in that region at an elevation of about 2,000 feet. Beyond the river still eastward the land again rises rapidly, and an extensive

* In this brief description the smaller valleys and ridges are not considered.

mountainous tract separates the New River from the plain on the east. This region when more thoroughly explored in the future will doubtless yield fine results.

About four miles northwest of Marion, on the opposite side of the valley of the middle fork of the Holston River, the Alleghanies take their rise. Beyond a more or less interrupted outlying ridge, at some places rising to 3,000 feet, Walker Mountain is situated, its highest altitude being 3,800 feet. Gradually shading out into the irregular valley of the north fork of the Holston, the land rises into more lofty and rugged mountains, prominent among which are the peak-like summits of White Rock, Red Rock, etc. The Alleghanies extend westward for many miles, finally ending with the Powell River valley, whence the most westerly mountain range rises—the Cumberland. This, although much lower than the two eastern ranges, spreads over a large area, and consists of almost innumerable small ridges, which fade out little by little into the plains of Kentucky and the neighboring States.

In consequence of such diversified conditions, it is natural that the flora of the whole district is more or less affected and locally distributed. The botany of our excursion is recorded in the following annotated list of the plants collected:

Clematis Addisonii, Britton. Roanoke, alt. 1,000 ft.

The locality discovered in 1890* was again visited and found to have been nearly obliterated by the quarrying down of the hill in the process of building new streets, so that where hundreds of plants were seen before not more than a couple of dozen were noticed.†

‡ *Clematis ovata*, Pursh. Fl. Am. Sept. ii. 737 (1814). Kate's Mt. Greenbriar Co., W. Va., alt. 3,300 ft.

For the first time, as far as is known, this rare Clematis has been collected in flower at the same place where Dr. Britton found it in fruit in 1890, and it proves to be a good species.

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* Mem. Torr. Club, ii. 28.

† In the Gattinger Herbarium of the University of Tennessee, at Knoxville, there is a specimen of this species preserved, collected by Mrs. Bennett, in 1888, in the Cumberland Mountains, Tenn.—N. L. B.

‡ Mem. Torr. Club, ii. 28.

It grows on a dry, slaty hillside, in low, crowded clumps, often as many as twenty stems growing from a lignous base and matted mass of lignous roots. The stems, leaves and petioles are pubescent with weak, matted, silky hairs, becoming more glabrous with age, the peduncle and petioles retaining more pubescence than the remaining portion of the plant; the leaves ovate, sparingly pubescent with few, weak, silvery hairs, becoming glabrous and strongly reticulate with age, sessile or very short petioled, entire or rarely with a few teeth. The flower is 1½–2½ cm. long, densely tomentose on the exterior, violet purple inside, the ripe plumose tails of the achenes greyish or creamy white.

Clematis ovata differs mainly from *C. ochroleuca* in its smaller more slender habit, nearly glabrous leaves, shorter petioles, smaller flowers and the much lighter color of its fruit, though whether the latter character is a constant one remains to be seen when more material of *C. ovata* has been collected and studied.

Clematis ochroleuca, Ait. Roanoke, alt. 1,000 ft.

A particularly vigorous form of this interesting plant. It grew in great profusion on a dry hillside and for a distance of half a mile or more very close to the town, and the locality will doubtless soon share the fate of that of *C. Addisonii.*

The majority of the many plants noted were remarkable for the lobing of their leaves, which in some cases were 3–5-cleft or parted nearly to the base. The flowers were about 3 cm. long, often with 5–6 sepals, very densely tomentose and cream or yellowish white on the outer surface; the interior of the sepals cream white or streaked with bluish purple, or entirely bluish-purple with a whitish margin. A few plants were slender and less vigorous, with more narrowly ovate leaves and distinctly purple flowers, and in leaf characters approaching *C. ovata.*

Clematis Viorna, L. Banks of the Middle Fork of the Holston, Marion, alt. 2,100 ft. Slopes White Rock Mt., alt. 4,200 ft.

Clematis Virginiana, L. Hog-trough Creek, base of Iron Mts., alt. 2,600 ft.

Thalictrum clavatum, D. C. Staley Creek, alt. 2,200 ft. Slopes and summit of White Top Mt., alt. 2,600–5,675 ft. Damp ledges of cliffs on Farmer Mt., alt. 2,300 ft.

THALICTRUM CORIACEUM (Britton) Small. *T. dioicum*, L., var. *coriaceum*, Britton, Bull. Torr. Club, xviii. 363.

The plant here raised to specific rank was first published by Dr. Britton as a variety of *Thalictrum dioicum*. After a thorough study of it in the field, it has been found to possess excellent specific characters, which are briefly brought out in the following description, the most prominent being italicized:

Perennial, root-stock and fibres large, *bright yellow;* strictly diœcious, rather strict, glabrous and more or less glaucous. Stem erect, 9–16 dm. tall, branching above into a compound panicle, striate; leaves ternately-decompound, short petioled, the petiole at the base expanded into two large *stipular appendages*, divisions of the leaflets varying from obovate to reniform-orbicular, almost white beneath, mostly *deeply and sharply incised*, quite *coriaceous*, veins prominent on the under surface; staminate flowers white, rather few, anthers linear, subulate-tipped, longer than the filiform filaments; pistillate flowers purple, numerous, ovary shorter than the style; achene oblong-ovoid, rather acute, *about the same length as the persistent style*, *sharply ribbed*, generally *long-stalked.*

Discovered at two localities in Southwestern Virginia, in the Blue Ridge along Nick's Creek, alt. 2,400 feet, and in the Alleghanies on White Rock Mountain, alt. 4,000 feet.

Thalictrum dioicum, L. Staley Creek, alt. 2,200 ft. Slopes of White Top Mt., alt. 2,600–5,000 ft.

Thalictrum polygamum, Muhl. Banks of the James River, Lynchburg, alt. 500 ft. Falls of the Holston, below Marion, alt. 2,050 ft.

Thalictrum purpurascens, L. Walker Mt., alt, 2,800 ft.

The only locality observed and not far from the southern observed limit of the range of this species, which is about the summit of the Blue Ridge in Watauga Co., N. C.*

Syndesmon thalictroides (L.) Hoffmsg. Vicinity of Marion, alt. 2,100–2,500 ft.

On some of the plants gathered the leaflets were 3 cm. long and 4 cm. broad. A few plants were also noticed with pink flowers.

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*Mem. Torr. Club, iii. 6 and 22.

Anemone quinquefolia, L. Marion, alt. 2,100 ft. Skull Gap, Iron Mts., alt. 3,000 ft.

On two occasions at the above localities a very small form of this plant was found in dense shade growing only a few inches high, with small ovate, almost rhomboid leaflets and very delicate flowers, the petals of which were pink tinged, and in character approaching *A. nemorosa* of Europe. A larger form grew in more open woods at Marion.

Anemone trifolia, L. Pond Mt., alt. 3,000. Walker Mt., below Chatham Hill Gap. alt. 2,700–3,400 ft. Slopes and summit of White Top Mt. alt. 2,600–5,678 feet.

Not seen below 2,500 feet, but on the higher slopes very abundant. The woods at the foot of and all along White Top Mt. summit were filled with it, in places to the exclusion of other plants. There was a diversity of leaf form noted, though in general the leaves did not vary as greatly as did those of plants noted two years previous on Salt Pond Mt. and on the Peaks of Otter.*

Anemone Virginiana, L. Beaver Creek, alt. 2,400 feet. Farmer Mt. New River, Carroll Co., 2,200 ft. Along Dickey Creek, alt. 2,600 ft.

Hepatica acuta (Pursh) Britton. Banks of the Holston, near Marion, alt. 2,100 ft. Hungry's Mother Creek, alt. 2,200 ft.

Only collected in fruit, some of the plants 30 cm. tall, the leaves often 12–13 cm. broad.

From the last named locality specimens were collected with leaves having the middle lobe of the leaf in its turn 3–lobed towards the apex, the lateral lobe often 1–2 lobed.

Trautvetteria Carolinensis (Walt.) Vail. Slopes of White Top Mt., alt. 3,500 ft. Banks of the South Fork of the Holston River, alt. 2,200 ft. Peak Creek, Peak Mt. alt. 2,200 ft. Shady cliffs of Farmer Mt., alt. 2,300 ft. In bloom on June 20th.

Ranunculus abortivus, L. Slopes and Summit White Top Mt., alt. 2,600–5,678 ft. Buchanan, alt. 1,100 ft. Hills about Marion, alt. 2,400.

The plants collected on White Top Mt. were very variable in size and aspect, those from near the base of the mountain were

* Mem. Torr. Club, ii. 32.

robust and large, whereas those from the exposed summit were so greatly reduced in size that their branches were almost filiform.

Ranunculus hispidus, Michx. Woods and hillsides, Marion, alt. 2,100–2,500 ft. Walker Mt., alt. 2,600–3,000 ft. Pond Mt., alt. 3,300 ft. Buchanan, alt. 1,100 ft.

R. septentrionalis was sought for but without success.

Ranunculus recurvatus, Poir. Walker Mt., woods, alt. 2,700–3,300 ft. Near Marion, alt. 2,100 ft. Slopes of White Top Mt., alt. 2,600–5,000 ft.

Ranunculus sceleratus, L. Roanoke, alt. 1,000 ft.

Caltha palustris, L. Staley Creek, Marion, alt. 2,200 ft.

Hydrastis Canadensis, L. Along a meadow on Hungry's Mother Creek, alt. 2,300 ft.

Aquilegia Canadensis, L. Rocky banks of the Middle Fork of the Holston River, alt. 2,100 ft. Dickey Creek, alt. 2,800 ft. Slopes of White Top Mt., alt. 2,600–5,000 ft.

Growing in great clumps through the White Top woods, some of the flowers measuring over 4 cm. in length.

Delphinium Consolida, L. Beaver Creek, alt. 2,000 ft. A pink and white-flowered form along the railroad track near Liberty, Bedford Co., alt. 1,000 ft.

A low, hardly more than 30 cm. high, deep blue-flowered form noted at intervals along the Norfolk and Western R. R., in many cases for several miles at a stretch. June 30th.

Delphinium tricorne, Michx. Woods on the Chatham Hill Gap road, on Hungry's Mother Creek, alt. 2,300 ft.

In fruit May 24th.

Aconitum reclinatum, A. Gray. East slope of White Top Mt., alt. 4,000 ft.

The second known locality for this species north of the North Carolina Mts. It is not plentiful and only one station was noticed. The other locality in Virginia is Cheat Mt. *

Aconitum uncinatum, L. Ravine of the Middle Fork of the Holston, alt. 2,100 ft.

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*A. Gray, Man. Bot. N. U. S. (Revised ed.) p. 47.

Actæa alba (L.) Mill. Summit and slopes of White Top Mt., alt. 2,600 to 5,500 ft. Along Nick's Creek, alt. 2,600 ft.

Cimicifuga Americana, Michx. The Island, Marion, alt. 2,100 ft. Falls of the Holston, below Marion, alt. 2,050 ft.

Cimicifuga cordifolia, Pursh. Hills east of Marion, alt. 2,300 ft. Falls of the Middle Fork of the Holston, alt. 2,050 ft.

Cimicifuga racemosa (L.) Nutt. Lynchburg, alt. 500 ft.

Xanthorhiza apiifolia, L'Her. Farmer Mt., New River, alt. 2,200 ft. Evidently a rare plant in the region, as it was not seen in the Valley of Virginia.

Magnolia acuminata, L. Staley Creek, alt. 2,100–2,300 ft., and common elsewhere throughout the county.

Magnolia Fraseri, Walt. Staley Creek, alt. 2,200 ft. Walker Creek, alt. 2,200 ft. Dickey Creek, alt. 2,800 ft. White Top Creek, below Skull Gap, alt. 3,000–3,500 ft., and elsewhere along swamps and streams, where during the last week in May the slender trees, 30–50 feet high, were in full bloom, the greenish-white petals measuring 10 cm. or more long when fully expanded.

Liriodendron Tulipifera, L. Hungry's Mother Creek, alt. 2,300 ft. Marion, alt. 2,100 ft., and elsewhere common throughout the county. In full bloom June 13th.

Asimina triloba (L.) Dunal. Near Broadford, alt. 2,200 ft. Lynchburg, alt. 500 ft.

Menispermum Canadense, L. Sugar Creek, near Marion, alt. 2,100 ft. Reed Creek, base of lower rocks, alt. 2,000 ft.

Berberis Canadensis (Ait.) Pursh. Banks of the Middle Fork of the Hoston at Marion, alt. 2,100 ft.

Common along streams and in rocky places. Messrs. Small and Heller did not meet with it in their journey through Northwestern North Carolina in 1891.

Caulophyllum thalictroides (L.) Michx. Slopes of White Top Mt. and Chestnut Ridge, alt. 3,000–5,000 ft. Lynchburg, alt. 500 ft.

Diphylleia cymosa, Michx. Slopes of White Top Mt., alt. 3,000–5,000 ft. In full bloom May 28th, along the swampy borders of streams and around springs, where it was very abundant.

Jeffersonia diphylla (L.) Pers. Hungry's Mother Creek, alt. 2,300 ft. Along Middle Fork of the Holston River, alt. 2,100–1,050 ft. In fruit June 10th. Plants 20–35 cm. high.

Podophyllum peltatum, L. Staley Creek, alt. 2,100 ft. Also common in fields and along woods elsewhere in the county.

Sanguinaria Canadensis, L. Banks of the Middle Fork of the Holston, alt, 2,100 ft. Woods in Hungry Hollow, alt. 2,300 ft. Mountains east of Buchanan, alt. 1,300 ft.

Bicuculla Canadensis, (Goldie) Millsp. Slopes of White Top Mt., alt. 4,500 ft.

Bicuculla Cucullaria (L.) Millsp. Slopes of White Top Mt., alt. 4,500 ft.

Bicuculla eximia (Ker) Millsp. Laurel Creek, in the North Fork of the Holston River Valley, alt. 2,200 ft.

Capnoides sempervirens (L.) Borckh. Dickey Creek, alt. 2,700 ft. Farmer Mt., New River, alt. 2,200 ft.

Roripa Nasturtium (L.) Rusby.* (*Sisymbrium Nasturtium*, L.; *Nasturtium officinale*, R. Br.) Staley Creek, 2,100 ft., and common elsewhere in the region in brooks and swamps.

Arabis Canadensis, L. Shannon Gap, Walker Mt., alt. 3,000 ft. Dickey Creek, Iron Mts., alt. 2,900 ft. Spur of Pine Mt., alt. 3,000 ft.

Arabis lævigata (Muhl.) Poir. River bluffs, Marion, alt. 2,100 ft. Slopes of Mt. Rogers, alt. 4,000–5,719 ft. Slopes of White Top Mt., alt. 4,000 ft. Buchanan, alt. 1,100 ft.

Arabis lyrata, L. Laurel Creek in the North Fork of the Holston River Valley, alt. 2,200 ft.

Cardamine bulbosa (Schreb.) B.S.P. Staley Creek, alt. 2,100 ft.

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* Mem. Torr. Club, iii., Part 3, 5 (1893). The generic name *Roripa*, Scop. Fl. Carn. 520 (1760), Adamson, Fam. Pl. ii. 417 (1763), must clearly displace *Nasturtium*, R. Br.

Cardamine Clematitis, Shuttl. Upper slopes and summit of White Top Mt., alt. 5,000–5,678 ft. Upper slopes of Mt. Rogers, alt. 5,600 ft.

The third known locality for this interesting Crucifer. The species was first collected on the summit of Roan Mt., Tenn. and N. C., many years ago, then in 1891 near the summit of Grandfather Mt., N. C., by Small and Heller.* This last collection brings the plant into the range of the flora of the Northern United States.

Cardamine flexuosa, With.† Summit and slopes of White Top Mt., alt. 4,500–5,678 ft. In rivulets on the slopes of Mt. Rogers, alt. 4,500 ft.

Cardamine parviflora, L. Chatham Hill road, Walker Mt., alt. 2,800–3,000 ft.

Cardamine Pennsylvanica, Muhl. Staley Creek, near Marion, alt. 2,100 ft.

Cardamine rotundifolia, Michx. Hungry's Mother Creek, alt. 2,600 ft. Slopes of Pine Mt., alt. 3,000–4,600 ft. Staley Creek, Marion, alt. 2,400 ft.

Dentaria diphylla, L. Ravine of the Middle Fork of the Holston, alt. 2,100 ft. Bluffs along Staley Creek, alt. 2,200 ft.

Dentaria laciniata, Muhl. Walker Mt. road, alt. 2,700 ft. Hill near Staley's Knob, Marion, alt. 2,300 ft. Slopes of White Top Mt., alt. 4,500 ft. Mt. Rogers, alt. 3,000–5,000 ft.

Many of the specimens densely puberulent.

Draba verna, L. Bluffs of the Holston, Marion, alt. 2,100 ft. Kate's Mt., Greenbriar Co., W. Va., alt. 3,300 ft.

Sisymbrium officinale (L.) Scop. Streets of Marion, alt. 2,100 ft.

Brassica campestris, L. Marion, alt. 2,100 ft.

Brassica nigra (L.) Koch. Old fields about Marion, alt. 2,100 ft.

Brassica oleracea, L. Marion, alt. 2,100 ft.

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*Mem. Torr. Bot. Club, iii. 5 and 22.

† This is certainly identical with the European plant. I have elsewhere expressed doubt of its occurrence in America, but I am now convinced that we have it. The plant is very distinct from *C. Pennsylvanica*, Muhl., which is abundant at lower altitudes. N. L. B.

Bursa Pastoris (L.) Weber. Bluffs of the Holston, Marion, alt. 2,100 ft.

Lepidium Virginicum, L. Sugar Creek, Marion, alt. 2,100 ft.

Lechea racemulosa, Michx. Pond Mt., alt. 3,000 ft. Banks of the Middle Fork of the Holston, Marion, alt. 2,100 ft. Dickey Creek, Iron Mts., alt. 2,900 ft. Mouth of Brush Creek, New River, alt. 2,200 ft. Pinnacle, alt. 3,500 ft. Peak Creek, alt. 3,200 ft.

Viola blanda, Willd. Summit White Top Mt., alt. 5,678 ft.

Viola blanda, var. *amœna* (Le Conte) B. S. P. (*Viola blanda*, var. *palustriformis*, A. Gray). Skull Gap, Iron Mts., alt. 3,500 ft. Pine Mt., alt. 4,000–4,900 ft. East Fork Walker Creek, alt. 2,250 ft.

Viola Canadensis, L. Staley Creek, alt. 2,400 ft. East slope of White Top Mt., alt. 4,600 ft.

Viola hastata, Michx. Staley Creek, alt. 2,400. Slopes of White Top Mt., alt. 4,000–5,000 ft. Along Nick's Creek, alt. 2,600 ft.

Viola Muhlenbergii, Torr. Staley Creek, alt. 2,400 ft.

Viola obliqua, Hill (*V. cucullata*, Ait.). Nick's Creek, Marion, alt 2,600 ft. Walker Mt., alt. 16 ft. Summit and slopes of White Mt., alt. 4,000–5,678 ft.

Viola obliqua, Hill, forma *albiflora*, Britton. Staley Creek, Marion, alt. 2,200 ft.

Viola palmata, L. Pond Mt. and Walker Mt., alt. 2,500–3,000 ft. Skull Gap, Iron Mts., alt. 3,000 ft. Nick's Creek, alt. 2,100 ft.

Viola pedata, L. Bear Creek, alt. 2,200 ft. Chatham Hill road, Walker Mt., alt. 2,500–3,000 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Viola pedata forma *bicolor* (Pursh) Britton. Walker Mt., alt. 2,500–3,000 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Viola pubescens, Ait. Staley Creek, alt. 2,400 ft. Hungry Hollow, alt. 2,200 ft. Mouth of Hungry's Mother Creek, alt. 2,075 ft.

Viola rostrata, Muhl. Pond Mt., alt. 2,800–3,500 ft. Falls of the Middle Fork of the Holston, alt. 2,050 ft. And elsewhere in the county.

Viola rotundifolia, Michx. Nick's Creek, alt. 2,300 ft. Pine Mt. alt. 4,800 ft. White Top Mt., alt. 5,000 ft.

Growing to great size in the deeper hemlock woods. Some of the leaves measuring 10-13 cm. long.

Viola sagittata, Ait. Lynchburg, alt. 500 ft. Skull Gap, Iron Mts., alt. 3,500 ft. Summit White Top Mt., alt. 5,000–5,678 ft.

Viola sagittata, var. *ovata* (Nutt.) T. and G. Summit of White Top Mt., alt. 5,678 ft.

Leaves villous, ovate, cordate, crenate, mostly with margined petioles, the earlier leaves round, cordate; flowers on peduncles much exceeding the leaves, very dark purple, large, with a thick, short spur. In bloom May 28th, among grass in an open field and appearing to be a marked variety.

Viola scabriuscula, Schwein. Walker Mt. road, alt. 2,400 ft. Green Cove, alt. 2,500 ft. Spruce Swamp, White Top Mt., alt. 4,500–5,000 ft.

Viola striata, Ait. Bluffs of the Holston, alt. 2,100 ft. Hungry's Mother Creek, near Marion, alt. 2,200 ft.

The common violet of the lower levels, often found in wet meadows and along streams, growing from 10–45 cm. tall.

Viola tenella, Muhl. Roanoke, alt. 1,000 ft. Buchanan, alt. 1,100 ft.

Viola villosa, Walt.* Pond Mt. and Staley's Creek, alt. 2,100–3,000 ft. Lynchburg, alt. 500 ft.

Solea concolor (Forst.) Ging. River bank, Marion, alt. 2,100 ft. Roanoke, alt. 1,000 ft.

Polygala ambigua, Nuttall. Lynchburg, alt. 500 ft.

Polygala paucifolia, Willd. Ravine of the Holston, below Marion, 2,050 ft. Knobs east of Marion, alt. 2,300 ft. Kate's Mt., West Virginia, alt. 3,300 ft.

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*After seeing this plant growing in great quantities in the region explored, I cannot doubt that it is distinct from *V. palmata*. Its characters are much more pronounced in the field than in the herbarium. The leaves are orbicular or ovate, obtuse and lie flat on the ground, are purple beneath or sometimes on both sides, and are seldom over 2 inches broad; their upper surfaces are usually silvery-pubescent. The whole plant, as in the related forms, varies from densely hirsute to nearly glabrous. N. L. B.

At all localities where the "fringed polygala" was found, the plants were producing cleistogamous flowers near the roots. These flowers fertilized themselves much more readily than the showy ones at the summit of the stem and produced by far the greater amount of fruit.

Polygala Senega, L., var. *latifolia*, Torrey & Gray. Buchanan, Botetourt Co., alt. 1,100 ft. Nick's Creek, east of Marion, alt. 2,700 ft. Pond Mt., east of Marion, alt. 3,000 ft.

Not one of our numerous specimens of the above species can be referred to the typical form, but all of them must be placed under the variety *latifolia*. The study of the specimens collected leads us to believe that the variety may be more prevalent than it is supposed to be, for this reason; the best and constant character of the variety is the *erose-denticulate* margins of the leaves under a lens, which are easily overlooked, as they are not very conspicuous. The varietal name is a poor guide, and is in fact often misleading.

Polygala verticillata, L. Lynchburg, alt. 500 ft. Slopes and summit of the Iron Mts., at Skull Gap, alt. 2,500–3,500 ft.

Dianthus Armeria, L. Lynchburg, alt. 500 ft. River banks, Marion, alt. 2,100 ft. Valley of the North Fork of the Holston River, alt. 2,100 ft. Banks of the New River, near Farmer Mt., alt. 2,200 ft.

Saponaria officinalis, L. Lynchburg, alt. 500 ft. Hogtrough Creek, base of Iron Mts., alt. 2,600 ft. Marion, alt. 2,100 ft. Pinnacle, Cumberland Gap, alt. 2,500 ft.

Silene antirrhina, L. Lynchburg, alt. 500 ft. Pinnacle, Cumberland Gap, alt. 3,500 ft. Middle Fork of the Holston, six miles west of Marion, alt. 2,050 ft.

Silene Caroliniana, Walter (*S. Pennsylvanica*, Michx.). Roanoke, alt. 1,000 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Silene stellata (L.) Ait. Slopes and summit of Iron Mt., alt. 2,500–3,500 ft. Nick's Creek, base of Pine Glade Mt., alt. 2,500 ft.

Silene Virginica, L. Marion, Alt. 2,100 ft. Slopes of White Rock Mt., alt. 4,000 ft. Buchanan, alt. 1,200 ft.

Agrostemma Githago, L. (*Lychnis Githago*, Lam.) Marion, alt. 2,100 ft.

Cerastium vulgatum, L. Summit White Top Mt., alt. 5,678 ft. Pine Mt., alt. 4,000–4,900 ft. East Fork Walker Creek, near Marion, alt. 2,250 ft.

Alsine media, L. Marion, alt. 2,100 ft.

Alsine pubera (Michx.) Britton. (*Stellaria pubera*, Michx. Fl. Bor. Amer. i. 273 (1803).) Buchanan, alt. 1,100 ft. Staley Creek, near Marion, alt. 2,400 ft. Pond Mt., alt. 3,000 ft. Slopes of White Top, alt. 2,600–5,000 ft. Pine Mt. and Fox Creek Valley, alt. 3,000–4,600 ft.

Arenaria serpyllifolia, L. Roanoke, alt. 1,000 ft. Mouth of Hungry's Mother Creek, alt. 2,075 ft.

Sagina decumbens (L.) Torr. and Gray. Add Wolf, South Fork Holston River, alt. 2,300 ft.

Claytonia Caroliniana, Michx. Summit and slopes of White Top Mt., Washington Co., alt. 4,500–5,678 ft.

Claytonia Virginica, L. Wood about Marion, alt. 2,200 ft.

Ascyrum hypericoides, L. (*A. Crux Andreæ*, L.). Chatham Hill Gap, Walker Mt., alt. 3,000 feet. Skull Gap, Iron Mts., alt. 3,000 ft. Along Middle Fork of the Holston, near Marion, alt. 2,100 ft.

Hypericum Drummondii, Torr. and Gray. South Fork of the Holston River, near Add Wolf, alt. 2,300 ft.

Growing on the sandy banks of the river. Reported hitherto in Gray's Manual from Western Illinois, Iowa, Kansas and southward.

Hypericum graveolens, Buckl. Chestnut Creek, Gossan, alt. 2,300 ft. Summit of White Top Mt., alt. 5,678 ft.

As the exploration of the northern Alleghanies goes on, the range of this rare and interesting plant is being gradually brought out. Up to a few years ago it was known only from the summit of Roan Mt., N. C., and vicinity, at elevations of 6,000 feet or more. In 1891 it was found on the southern slopes of Grandfather Mt., N. C., at 4,200 feet, and a short time after this it was also discovered on Blowing Rock Mt., in the same State, at 4,000 feet.* Although collected at these new localities, it was still con-

* Mem. Torr. Club, iii. 17 and 23.

fined to the mountains of Western North Carolina. On the present expedition special search was made for the plant, and we were rewarded by finding it at the two stations given, thereby bringing it into the range of the Northern flora. The Chestnut Creek locality is especially interesting, as it is nearly 4,000 feet lower than the original and ordinary habitat of this mountain plant.

Hypericum maculatum, Walt. Peak Creek, Peak Mt., alt. 2,200 ft. Reed Creek, at base of lower rocks, alt. 2,000 ft. Round Top Mt., Seven Mile Ford, alt. 3,000 ft. Middle Fork of the Holston, Marion, alt. 2,100 ft. Along Hungry's Mother Creek, alt. 2,200 ft.

Hypericum mutilum, L. Peak Creek, Peak Mt., alt. 2,200 ft. Hogtrough Creek, base of Iron Mts., alt. 2,000 ft.

Hypericum perforatum, L. Broakford, North Fork of the Holston River Valley, alt. 2,200 ft. Peak Creek, Peak Mt., alt. 2,200 ft.

Hypericum prolificum, L. Banks of the Middle Fork of the Holston River, Marion, alt. 2,100 ft. Chilhowie, alt. 2,000 ft. Near Seven Mile Ford, alt. 2,025 ft.

Hypericum virgatum, Lam. Mouth of Brush Creek, New River, alt. 2,200 ft.

Malva moschata, L. Streets of and roadsides near Marion, alt. 2,100 ft.

Malva rotundifolia, L. Streets of Marion, alt. 2,100 ft. Near Bristol, alt. 1,800 ft.

Malva sylvestris, L. Middle Fork of the Holston, six miles west of Marion, alt. 2,050 ft.

Sida spinosa, L. Chilhowie, alt. 2,000 ft. Cumberland Gap, alt. 1,500 ft.

Hibiscus Syriacus, L. Along South Fork of the Holston, at St. Clair's, alt. 2,200 ft.

Tilia heterophylla, Vent. Lynchburg, alt. 500 ft. Marion, alt. 2,100 ft. Reed Creek, base of lower rocks, alt. 2,000 ft. Farmer Mt., New River, alt. 2,200 ft.

Linum striatum, Walter. South Fork of the Holston River, at Add Wolf, alt. 2,300 ft.

Linum Virginianum, L. Lynchburg, alt. 500 ft.

Linum usitatissimum, L. Lynchburg, alt. 500 ft.

Geranium Carolinianum, L. Roanoke, alt. 1,000 ft. Summit of Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. Along Hutton's Branch, alt. 2,300 ft.

Geranium maculatum, L. Marion, alt. 2,100 ft. Pond Mt., alt. 3,000 ft.

Geranium pusillum, L. Laurel Creek, at junction with the North Fork of the Holston River, alt. 2,200 ft. Slopes of White Rock Mt., alt. 3,500 ft.

Abundant on the slopes of the White Rock Mt., and formerly collected only as far south as Pennsylvania.

Oxalis Acetosella, L. Summit of White Top Mt., alt. 5,000–5,678 ft. Slopes and summits of Mt. Rogers and Pine Mt., alt. 4,000–5,719 ft.

Quite abundant on the upper slopes, where in dense shade some plants with deep red-purple flowers were collected.

Oxalis recurva, Ell. Banks of the Holston River, Marion, alt. 2,100 ft. Beaver Creek, near the North Fork of the Holston Valley, alt. 2,800 ft.

Oxalis stricta, L. Lynchburg, alt. 500 ft. Roanoke, alt. 1,000 ft. Sugar Creek, near Marion, alt. 2,200 ft.

About the Falls of the Middle Fork of the Holston, near Marion, alt. 2,050 feet, a very slender, small-leaved plant was collected. The flowers were small and delicate, yellow; the pods short and broad, with prominently recurved, long and slender pedicels. The same form was found before at Roanoke, and in central North Carolina.*

Oxalis violacea, L. Vicinty of Marion, alt. 2,100 ft.

Impatiens aurea, Muhl. Island in the Holston, at Marion, alt. 2,100 ft.

Ilex montana, Torrey and Gray. Eastern slopes of White Top Mt., alt. 4,060 ft. Summit White Rock Mt., alt. 4,400 ft.

Ilex opaca, Ait. Slemp's Creek, alt. 2,600 ft. McGrady's Creek, alt. 2,200 ft.

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* Mem. Torr. Club, iii. 1.

Ilex verticillata (L.) A. Gray. Peak Creek, Peak Mt., alt. 2,200 ft.

Euonymus Americanus, L. Ravine of the Holston, below Marion, alt. 2,000 ft.

Pachystima Canbyi, A. Gray. Reed Creek, base of Lower Rocks, alt. 2,000 ft.

Still growing in seemingly inexhaustible quantities on the shaded mountain side above Reed Creek, northeast of Wytheville, where it was discovered by Mr. Howard Shriver, many years ago. It forms dense mats over the dry soil and rocks on the steep and in some places almost perpendicular slopes.

Euonymus atropurpureus, Jacq. Island in the Holston, near Marion, alt. 2,100 ft.

Celastrus scandens, L. Nick's Creek, on Brushy Mt., alt. 2,800 ft.

Ceanothus Americanus, L. Along Peak Creek on Peak Mt., alt. 2,200 ft. On Round Top, west of Seven Mile Ford, alt. 3,000 ft. On Walker Mt., near Shannon Gap, alt. 2,800 ft.

Vitis æstivalis, Michx. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Farmer Mt., on New River, alt. 2,200 ft. Common everywhere.

Vitis cordifolia, Michx. Bluffs of the Holston at Marion, alt. 2,100 ft. Near Bristol, alt. 1,000 ft. Spurs of Walker Mt., alt. 2,400 ft.

Vitis Labrusca, L. Rocky bluffs along the Holston River, at Marion, alt. 2,100 ft.

The only station noticed.

Vitis vulpina, L. (*Vitis riparia*, Michx.). Lynchburg, alt. 500 ft.

Æsculus octandra, Marsh. Staley Creek, near Marion, alt. 2,300 ft.

Common in the valleys and on the lower slopes of the mountains.

Acer nigrum, Michx. f. Hungry's Mother Creek, near Marion, alt. 2,500 ft. Limestone bluff of the Holston River, below Marion, alt. 2,050 ft.

The most conspicuous and stately tree of the region, attaining great height and development in the valleys.

Acer Pennsylvanicum, L. Skull Gap, in the Iron Mts., alt. 3,000 ft. Brushy Mt., east of Marion, alt. 3,000 ft. Slopes of White Top Mt., alt. 4,800 ft. Kate's Mt., White Sulphur Springs, W. Va., alt. 3,300 ft.

Acer rubrum, L. Falls of the Middle Fork of the Holston, alt. 2,050 ft.

This species, usually described as a "small tree" reaches a considerable development in the southern Alleghanies. On the mountain sides the trunk commonly measures two to three feet in diameter.

Acer Saccharum, Marsh. Near the summit of White Top Mt., alt. 5,300 ft.

Acer spicatum, Lam. Ravine of the Middle Fork of the Holston, alt. 2,050 ft. Hungry's Mother Creek, near Marion, alt. 2,300 ft.

Negundo Negundo (L.) Karst. Along North Fork of the Holston, near McGrady's Creek, alt. 2,200 ft.

Staphylea trifolia, L. River banks at Marion, alt. 2,100 ft.

Rhus copallina, L. Hogtrough Creek, base of the Iron Mts., alt. 2,600 ft.

Rhus glabra. L. South Fork of the Holston River at St. Clair's Bottom, alt. 2,200 ft.

Rhus radicans, L. Banks of the Holston, Marion, alt. 2,100 ft.

Quite abundant in the immediate vicinity of the town and on some of the surrounding hills, and remarkable for the more or less deeply lobed or broadly crenate leaves.

Baptisia tinctoria (L.) R. Br. Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft. Shannon Gap, Walker Mt., alt. 2,800 ft.

Lupinus perennis, L. Buchanan, Botetourt Co., alt. 1,100 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Not encountered in the mountains or valleys south of Buchanan.

Melilotus alba, L. Lynchburg, alt. 500 ft. In a meadow along the railroad on Peak Mt., alt. 2,200 ft.

Trifolium agrarium, L. Peak Creek on Peak Mt., alt. 2,200 ft.

Trifolium arvense, L. Farmer Mt., New River, alt. 2,200 ft.

Trifolium dubium, Sibth. (*Trifolium procumbens*, L., var. *minus*, Koch.). River banks, Marion, alt. 2,100 ft.

Trifolium hybridum, L. Hungry's Mother Creek, near Marion, alt. 2,500 ft.

Trifolium pratense, L. Hungry's Mother Creek, near Marion, alt. 2,500 ft.

Forma *alba*, Britton. Flowers white. Hungry's Mother Creek, near Marion, alt. 2,300 ft. Hill east of Marion, alt. 2,300 ft.

Trifolium procumbens, L. Hills east of Marion, alt. 2,300 ft. Lyon Gap, Walker Mt., alt. 2,800 ft.

Trifolium repens, L. Reed Creek, at base of Lower Rocks, alt. 2,000 ft. Marion, alt. 2,100 ft.

Trifolium Virginicum, Small n. sp. Perennial from a large and long root, diffusely branched from the summit of the root; branches 2–4 cm. long, strictly prostrate, pubescent; leaves 3-foliolate, petiole 4–8 cm. long; leaflets linear, linear-lanceolate or oblanceolate, 1–4 cm. long, acute or cuspidate, serrate-dentate, glabrous above, more or less silky beneath, conspicuously veined; sepals ovate, conspicuous; infloresence in terminal, globose heads, about 2.5 cm. in diameter; flowers whitish, more or less crowded on slender pedicels, .2–.4 cm. long, standard emarginate-mucronate, striate; calyx clothed with long silky hairs, the teeth subulate, nearly half the length of the corolla. Pod and seeds not seen. (Plate 75.)

Growing on the rocky slopes of Kate's Mt., Greenbrier Co., West Virginia, in company with *Clematis ovata*.

The most marked new plant collected on the expedition. By its flower most closely related to *T. stoloniferum*, but in all other respects differing from that and the other eastern American species.

Robinia Pseudacacia, L. Vicinity of Marion, alt. 2,100 ft. Summit of Brushy Mt., and along Nick's Creek, alt. 2,500–3,000 ft.

Cracca Virginiana, L. Lynchburg, Co., alt. 500 ft. Shannon Gap, Walker Mt., alt. 2,800 ft. Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft. Pinnacle, alt. 3,500 ft.

Astragalus Carolinianus, L. (*Astragalus Canadensis*, L.). Along Middle Fork of the Holston at Marion, alt. 2,100 ft. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft. Brushy Mt., alt. 3,000 ft. Slope and summit of the Iron Mts., at Skull Gap, alt. 2,500–3,500 ft.

Stylosanthes biflora (L.) B.S.P. Near Seven Mile Ford, alt. 2,050 ft. Lyon's Gap, Walker Mt., alt. 2,800 ft. Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft.

Meibomia Dillenii (Darl.) Kuntze. Brushy Mt., alt. 3,000 ft. Immature specimens only.

Meibomia grandiflora (Walter) Kuntze. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft.

Meibomia lævigata (Nutt.) Kuntze. Shannon Gap, Walker Mt., alt. 2,800 ft.
Immature specimens only.

Meibomia nudiflora (L.) Kuntze. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft.

Meibomia rotundifolia (Michx.) Kuntze. Brushy Mt., alt. 3,000 ft. Growing on the gravelly banks of the road, from long, branching ligneous roots.

Lespedeza hirta (L.) Elliott. Skull Gap, Iron Mts., alt. 2,500–3,500 ft.

Lespedeza intermedia (S. Wats.) Britton. Skull Gap, Iron Mts., alt. 2,500–3,500 ft.

Lespedeza repens (L.) Barton. Lynchburg, alt. 500 ft. Rich Valley and Bradford, alt. 2,200 ft. Shannon Gap, Walker Mt., alt. 2,800 ft.

Lespedeza striata (Thunb.) H. and A. Cumberland Gap, alt. 1,500 ft.

Vicia Americana, Muhl. Summit and slopes of White Rock Mt., alt. 4,000–4,400 ft.
Not collected south of Pennsylvania before.

Vicia Caroliniana, Walt. Staley Creek, near Marion, alt. 2,300 ft. Kate's Mt., White Sulphur Springs, W. Va., alt. 3,000 ft.

Apios Apios (L.) MacM. Along Middle Fork of the Holston River, Marion, alt. 2,100 ft.

Lathyrus venosus, Muhl. Kate's Mt., W. Va., alt. 3,300 ft.

Cassia Marylandica, L. Reed Creek, at base of Lower Rocks, alt. 3,000 ft. St. Clair's Bottom on South Fork of the Holston, alt. 2,000 ft.

Cassia nictitans, L. Pinnacle, alt. 3,500 feet.

Cercis Canadensis, L. Banks of the Holston River at Marion, alt. 2,100 ft.

Prunus Americana, Marsh. Roadsides, west of Marion, alt. 2,000 ft. Saltville, alt. 2,200 ft.

Prunus Pennsylvanica, L. f. Summit of White Top Mt., alt. 5,678 ft. Slopes of White Top Mt., alt. 2,600–5,000 ft. Slopes of the Iron Mts., alt., 2,600–3,500 ft.

Cerasus serotina (Ehrh.) Loisel. River banks, Marion, alt. 2,100 ft. Hungry Hollow, above Marion, 2,400 ft.

Cerasus serotina, var. MONTANA, Small, n. var. A small tree, twenty-five feet tall, and with a trunk diameter of 2–5 dm., well rounded, rather stiff and not lax; bark early developing numerous lenticels; leaves elliptical, oblong-lanceolate or lanceolate, 5–17 cm. long, 2–4.5 cm. broad, very coriaceous, coarsely serrate, the teeth incurved, dark green above, light beneath, rather coarsely veined, glands on the petiole separated from the blade from .2–.5 cm.; inflorescence of short, thick, divergent racemes, not drooping, rather few-flowered, also bearing two to three leaves; flowers quite large; calyx and *filaments* persistent; drupe large (ripe fruit not seen, half-ripe drupes .7 cm. in diameter.)

A very distinct variety of *C. serotina* found only on the "balds," near the summit of White Top Mt. at an altitude of about 5,500 ft. Readily distinguished from the species by the larger, more lanceolate and coriaceous leaves, the shorter, thicker and more divergent racemes and the larger fruit.

Aruncus Aruncus (L.) Karst. (*Spiræa Aruncus*, L.). Peak Creek, Peak Mt., alt. 2,200 ft. Shannon Gap, Walker Mt., alt. 2,800 ft. Hutton's Branch near Marion, alt. 2,300 ft. Hills east of Marion, alt. 2,400 ft.

Spiræa corymbosa, Raf. Near Buchanan, alt. 1,100 ft.

Spiræa tomentosa, L. Peak Creek, on Peak Mt., alt. 2,200 ft.

Opulaster opulifolius (L.) Kuntze. (*Spiræa opulifolia* L.). Banks of the Holston River, Marion, alt. 2,100 ft.

PORTERANTHUS TRIFOLIATUS (L.) Britton.* (*Gillenia trifoliata*, Moench). Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Kate's Mt., W. Va., alt. 3,300 ft. (Plate 76.)

Rubus invisus (Bailey) Britton. (*Rubus villosus*, Ait. var. *humifusus*, Torr. and Gray.) Banks of the Middle Fork of the Holston at and below Marion, alt. 2,100 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Hillsides around Marion, alt. 2,100–2,500 ft. Staley Creek, near Marion, alt. 2,200 ft. Dickey Creek, along the Iron Mts., Grayson Co., alt. 2,800–3,000 ft.

Rubus Millspaughii, Britton. Above Fox Creek, on Pine Mt., in deep woods, alt. 3,000 ft. Summit and slopes of Mt. Roger's, alt. 4,000–5,719 ft. Summit of White Top Mt., alt. 5,678 ft. Slopes and summit of White Rock Mt., alt. 3,000–4,400 ft.

Rubus occidentalis, L. Walker Mt. road near Hungry's Mother Creek, alt. 2,400 ft. River banks at Marion, alt. 2,100 ft.

Rubus odoratus, L. Chatham Hill Gap, Walker Mt., alt. 3,100 ft. Skull Gap, Iron Mts., alt. 3,000 ft. Pine Mt., alt. 4,600 ft. Reed Creek, base of Lower Rock, alt. 2,000 ft.

Rubus villosus, Ait. Walker Mt. road near Hungry's Mother Creek, alt. 2,400 ft. Open fields near Troutdale at the base of Pine Mt., alt. 2,800 ft.

Rubus villosus, Ait., var. *frondosus*, Torr. Nick's Creek, alt. 2,100 ft. Petals pink.

Rubus villosus, Ait., var. *montanus*, Porter. Chatham Hill Gap, Walker Mt., alt. 2,800 ft.

Growing on the edge of a swamp below the Gap.

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* The generic name *Gillenia*, applied to this plant by Mœnch, in 1802, is a homonym of *Gillena*, Adans., published in 1763, for plants now referred to the genus *Clethra*, L., the two being but different spellings of the same word, and hence is to be rejected. It is with great pleasure that I here associate with these herbs the name of Professor Thomas Conrad Porter, whose important contributions to our knowledge of North American plants have extended over a period of more than fifty years.

The other species of the genus is:

PORTERANTHUS STIPULATUS (Muhl.).

Spiræa stipulata, Muhl.; Willd. Enum. i. 542 (1809). N. L. B. (Plate 77.)

Geum Canadense, Jacq. Slopes of White Rock Mt., alt. 4,000 ft. Mouth of Hungry's Mother Creek and along the Middle Fork of the Holston, alt. 2,100 ft.

Geum Canadense, var. *flavum* (Porter) Britton. Banks of the Holston above Marion, alt. 2,100 ft.

Waldsteinia fragarioides (Michx.) Tratt. Ravine of the Middle Fork of the Holston, below Marion, alt. 2,050 ft.

Fragaria Americana (Porter) Britton. Beaver Creek, alt. 2,500 ft. Growing in a damp, shady ravine with *F. Virginiana*, and both fruiting. The fruit 8–10 mm. long, acute, very sweet and fragrant.

Fragaria Virginiana, Mill. Roanoke, alt. 1,000 ft. Beaver Creek, alt. 2,500 ft. Near Marion, Smyth Co., alt. 2,100 ft. Summit of White Top Mt., alt. 5,678 ft.

The specimens collected in the last locality grew among grasses on the great "balds" along the top of the mountain, and were very small and stunted, only from 4–8 cm. high; in bloom on May 28th.

Potentilla Canadensis, L. Near Staley Knob, Marion, alt. 2,300 ft. Walker Mt. road, woods near Marion, alt. 2.300 ft. Summit of White Top Mt., alt. 5,678 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Summit of White Rock Mt., alt. 4,400 ft.

Potentilla Norvegica, L. Peak Creek, on Peak Mt., alt. 2,200 ft.

Potentilla tridentata, Sol. Summit of White Top Mt., alt. 5,678 ft. Slopes of the Iron Mts., alt. 3,000 ft.

Agrimonia mollis (Torr. & Gray) Britton. East slopes of White Top Mt., alt. 4,000 ft.

Agrimonia parviflora, Ait. Ravine of the Middle Fork of the Holston River, six miles below Marion, alt. 1,050 ft. On the South Fork of the Holston River, near Add Wolf, alt. 2,300 ft.

Agrimonia striata, Michx. Hills near Marion, alt. 2,100 ft. Along the South Fork of the Holston River, and about Chilhowie, alt. 2,000–2,200. Woods on Fox Creek, base of Pine Mt., alt. 3,000 ft.

Rosa canina, L.? Slopes of Pond Mt., alt. 2,600 ft.

Rosa Carolina, L. Vicinity of Marion, alt. 2,100 ft. New River at mouth of Brush Creek, alt. 2,200 ft.

Rosa humilis, Marsh. Skull Gap, Iron Mts., alt. 2,500 ft. Round Top Mt., Seven Mile Ford, alt. 3,000 ft. New River, at mouth of Brush Creek, alt. 2,200 ft. Rye Valley, alt. 2,400 ft.

Rosa rubiginosa, L. Skull Gap, Iron Mts., alt. 3,000 ft. Reed Creek, at base of Lower Rocks, alt. 2,000 ft.

Sorbus Americana, Marsh. Summit White Top Mt., Washington Co., alt. 5,678 ft. One tree noted was over 30 cm. in diameter.

Pyrus angustifolia, Ait. Headwaters of Comer Creek, Iron Mts., alt. 3,000 ft.

Pyrus arbutifolia (L.) L. f. Peak Creek, Pulaski Co., alt. 2,200 ft.

Pyrus coronaria, L. Along the South Fork of the Holston River, alt. 2,200 ft. Peak Creek, on Peak Mt., alt. 2,200 ft.

Pyrus Ioensis, Bailey ? Peak Creek, on Peak Mt., alt. 2,200 ft.

Pyrus nigra (Marsh.) Sargent. Summit White Rock Mt., alt. 4,410 ft. Staley Creek, near Marion, alt. 2,200 ft.

Cratægus coccinea, L. Staley Creek above Marion. alt. 2,100 ft. Rye Valley, alt. 2,400 ft. Tree 1° in diameter. Saltville, alt. 2,200 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

Cratægus Crus-galli, L. Along the South Fork of the Holston, alt. 2,200 ft. Along the North Fork of the Holston near Saltville, alt. 2,200 ft. Near Bristol, alt. 1,800 ft. Hungry Hollow near Marion, alt. 2,200 ft.

Cratægus Crus-galli, L. var. *ovalifolia*, Lindley. Along the South Fork of the Holston River, alt. 2,200 ft.

Cratægus glandulosa, Münch. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Along South Fork of the Holston River, alt. 2,200 ft. Staley Creek above Marion, alt. 2,200 ft. Hills near Buchanan, alt. 1,100 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Cratægus mollis, Schrad. Shannon Gap, Walker Mt., alt. 2,800 ft.

Cratægus punctata, Jacq. Hunger Hollow, near Marion, alt. 2,300 ft. Summit of White Top Mt., alt. 5,678 ft. White Rock Mt., alt. 4,400 ft. Saltville, alt. 2,200 ft. In Rye Valley, alt. 2,300 ft.

Cratægus uniflora, Münch. Near Buchanan, alt. 1,100 ft. Roanoke, alt. 1,000 ft. Along Walker Creek, foot of Walker Mt., alt. 2,500 ft. Bristol, alt. 1,800 ft.

Amelanchier Canadensis (L.) Medic. Kern Valley, alt. 2500 ft. Pond Mt., alt. 3,000 ft. Summit of White Top Mt., alt. 5,678 ft.

Saxifraga Caroliniana, A. Gray. Chloris Boreali Americani, in Mem. Am. Acad. Arts Sci. iii. 39 (1846). Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

This interesting plant was first collected by Dr. Asa Gray on Grandfather Mt., North Carolina, growing with *S. Careyana*, both plants being published under that name in Am. Journ. Sci., xlii. in 1842. Dr. Gray wrote that the difference between the two plants was not detected till they bloomed in Cambridge the following spring, when they displayed characters that remained constant in cultivation.

On Walker Mt. *S. Caroliniana* was growing in great abundance on wet rocks on the north side of the Gap for a space of possibly quarter of a mile along the road. It was 20–40 cm. or more high, the stems glandular pubescent, the leaves all in a rosette at the base, ovate-oblong or round-reniform, 2½–11 cm. or more long, 1½–8 cm. wide, crenately dentate with broad, acute, mucronulate or obtuse teeth, glandular pubescent on the margins, acute, cuneate or deltoid at the base, gradually or abruptly contracted into a margined petiole, mostly about the length of the blade. Panicle diffuse, with a few very narrow, inconspicuous bracts, the white, two-spotted petals longer than the reflexed sepals. Filaments slender, clavate. Follicles ovate, acute, spreading, when mature probably over 6 mm. long.

Engler, in his Monographie der Gattung Saxifraga, p. 137 (1872), accords this species only varietal rank. *S. Careyana* is glabrous, with only faintly spotted petals, spreading sepals and filiform filaments.

Saxifraga Michauxii, Britton.* Summit of White Top Mt., alt. 5,678 ft. White Rock Mt., alt. 4,400 ft.

Growing on the wet cliffs at the summit of the mountain and showing great diversity in the size and shape of the leaves. Some

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* *Saxifraga leucanthemifolia*, Michx., Flor. Bor. Am. i. 268 (1803) not La Peyr.

Hexaphoma petiolaris, Raf. Flor. Tell. 267 (1836) not *S. petiolaris*, R. Br.

plants collected were leafy all the way to the top of the panicles, the leaves being from 5–10 cm. in length.

Saxifraga micranthifolia (Haw.) B.S.P. Staley Creek and Hutton's Branch, near Marion, alt. 2,200–2,300 ft. Along White Top Creek, alt. 2,600 ft. Slopes of Mt. Roger's, alt. 4,000–5,719 ft. Lynchburg, alt. 500 ft.

The plants gathered in the last named locality were growing on dripping rocks on the banks of the James River and were noteworthy on account of the broad, oblong, thick, rather sharply denticulate leaves.

Therofon aconitifolium (Nutt.) Kuntze (*Boykinia aconitifolia*, Nutt.). Comer Creek, Iron Mts., alt. 2,600 ft. Dickey Creek, alt. 2,800 ft. In the last named locality it was quite abundant, growing on rocks in and along the creek.

Tiarella cordifolia, L. Staley Creek near Marion, alt. 2,300 ft. Nick's Creek at the base of Pine Glade Mt., alt. 2,300 ft. Summit of White Top Mt., alt. 5,678 ft.

Mitella diphylla, L. Staley Creek near Marion, alt. 2,400 ft.

Heuchera pubescens, Pursh. Shannon Gap and Lyon Gap, Walker Mt., alt. 2,800 ft. Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft. Roanoke, alt. 1,000 ft.

Heuchera villosa, Michx. Hungry Hollow near Marion, alt. 2,200–2,300 ft. Along Middle Fork of the Holston, near Marion, alt. 2,100 ft. Peak Creek, Peak Mt., alt. 2,200 ft.

Chrysosplenium Americanum, L. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft. White Top Mt., alt. 5,678 ft.

Hydrangea arborescens, L. Bristol, alt. 1,800 ft. Along Beaver Creek, alt. 2,600 ft. Slopes of Pond Mt., alt. 2,500 ft. Along Middle Fork of the Holston, below Marion, alt. 2,000 ft. Nick's Creek at the base of Pine Glade Mt., alt. 2,500 ft. Round Top Mt., near Seven Mile Ford, alt. 3,000 ft. Farmer Mt., alt. 2,200 ft. Lynchburg, alt. 500 ft.

Ribes Cynosbati, L. Bluffs of the Middle Ford of the Holston near Marion, alt. 2,100. Slopes of White Top Mt., alt. 2,600–5,000 ft.

Ribes prostratum, L'Her. Pine Mt., alt. 3,000 ft. Mt. Rogers, alt. 5,000 ft. Summit of White Top Mt., alt. 5,678 ft.

Ribes rotundifolium, Michx. Slopes of White Top Mt., alt. 5,000 ft.

Ribes rubrum, L. Fields near Marion, alt. 2,100 feet. Introduced.

Sedum Nevii, A. Gray, Roanoke, alt. 1,000 ft.

Sedum ternatum (Haw.) Michx. Banks of the Holston and Staley Creek, Marion, alt. 2,100–2,300 ft. Buchanan, alt. 1,100 ft. Slopes of Farmer Mt., alt. 2,200 feet.

Hamamelis Virginiana, L. Hills near Marion, alt. 2,200 ft.

Cuphea petiolata (L.) Kœhne. Mouth of Hungry's Mother Creek, alt. 2,075 ft.

Decodon verticillatum (L.) Ell. Wallace Switch, alt. 1,900 ft.

Ludwigia palustris (L.) Ell. Wallace Switch, alt. 1,900 ft.

Œnothera fruticosa, L. Head waters of Comers Creek, Iron Mts., alt. 3,000 ft. Slopes of White Top Mt., alt. 3,000 ft. Trautdale fields, alt. 2,800 ft.

Œnothera glauca, Michx. Lynchburg, alt. 500 ft.

Œnothera linearis, Michx. Fields near Marion, alt. 2,100 ft.

Œnothera pumila, L. Hills east of Marion, alt. 2,300 ft. Lynchburg, alt. 500 ft.

Gaura biennis, L. Wallace Switch, alt. 1,900 ft. Marion, alt. 2,100 ft.

Circœa alpina, L. Nick's Creek, base of Pine Glade Mt., alt. 2,500 ft. Iron Mts., near White Top Creek, alt. 3,000 ft. Pine Mt., alt. 4,600 ft.

Circœa Lutetiana, L. Beaver Creek, at the base of Walker Mt., alt. 2,600 ft. Mouth of Hungry's Mother Creek, alt. 2,075 ft.

Passiflora lutea, L. Banks of the Holston at Marion, alt. 2,100 ft.

Mollugo verticillata, L. Farmer Mt., on New River, alt. 2,200 ft.

Hydrocotyle Americana, L. Base of the Iron Mts., below Skull Gap, alt. 2,200 ft.

Sanicula Canadensis, L. Slopes of White Top Mt., alt. 2,600–5,000 ft. Pinnacle, alt. 2,000 ft. Chilhowie, alt. 2,000 ft. Lynchburg, alt. 500 ft.

Sanicula Marylandica, L. Vicinity of Marion, alt. 2,100 ft.

Cicuta maculata, L. Hutton's Branch, near Marion, alt. 2,200 ft. At St. Clair's Bottom and along the Middle Fork of the Holston River, near Marion, alt. 2,100 ft.

Zizia aurea, Koch. Vicinity of Marion, alt. 2,100 ft. Bear Creek, east of Hungry Hollow, alt. 2,400 ft. Peak Creek, on Peak Mt., alt. 2,200 ft.

Zizia Bebbii (Coult. and Rose) Britton. Chatham Hill Gap, Walker Mt., alt 2,400–3,000 ft. Kate's Mt., W. Va., alt. 3,300 ft.

Zizia cordata (Walt.) Koch. Pond Mt., alt. 3,000 ft.

Sium cicutæfolium, Gmelin. River banks, Marion, alt. 2,100 ft.

Pimpinella integerrima (L.) Benth. and Hook. Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

Deeringia Canadensis (L.) Kuntze (*Cryptotænia Canadensis*, D. C.). River banks, Marion, alt. 2,100 ft. Summit of Walker Mt., alt. 3,400 ft.

Osmorhiza Claytoni (Michx.) B. S. P. White Rock Mt. alt. 4,400 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

Osmorhiza longistylis (Torr.) D. C. Roanoke, alt. 1,000 ft. Vicinity of Marion, alt. 2,100 ft.

Fœniculum Fœniculum (L.) Karst. (*Fœniculum vulgare*, Gaertn.) Along Middle Fork of the Holston River west of Marion, alt. 2,050 ft.

Ligusticum Canadensis (L.) Vail. (*Ligusticum actæifolium*, Michx.) Shannon Gap, Walker Mt., alt. 3,000 ft. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft. Peak Creek, on Peak Mt., alt. 2,200 ft.

Thaspium barbinode (Michx.) Nutt. Vicinity of Marion, alt. 2,100 ft. Slopes of White Top Mt., alt. 2,600–5,000 ft. Near Bristol, alt. 1,000 ft. Farmer Mt., on New River, alt. 2,200 ft. Lynchburg, alt. 500 ft.

Angelica villosa (Walt.) B.S.P. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Slemp Creek, alt. 2,800 ft. Peak Creek, Peak Mt., alt. 2,200 ft. Pinnacle, alt. 3,500 ft.

Daucus Carota, L. Marion, alt. 2,100 ft.

Aralia nudicaulis, L. Summit of Pond Mt., east of Marion, alt. 3,300 ft.

Aralia racemosa, L. Along the upper part of Nick's Creek, on the slopes of Pine Glade Mt., alt. 2,600 ft.

Panax quinquefolia, L. (*Aralia quinquefolia*, Decne. and Planch.) Only one specimen of this species was collected and it was found under a damp, overhanging cliff near the falls of the Holston River, alt. 2,050 ft.

Cornus alternifolia, L. f. Bluffs of the Holston River at Marion, alt. 2,100 ft. Along Bear Creek, alt. 2,400 ft.

Cornus florida, L. Along Staley Creek, east of Marion, alt. 2,200 ft. Northeast slope of White Top Mt,, alt. 4,000 ft. Chestnut Ridge, alt. 3,500 ft. Walker Mt., at Lyon's Gap, alt. 2,800 ft. Along Peak Creek on Peak Mt., alt. 2,200 ft. Kate's Mt., W. Va., alt. 3,300 ft.

On the hills along Staley Creek, near Marion, a decidedly pinkish-flowered form was noticed.

Cornus sericea, L. Along the South Fork of the Holston River near Add Wolf, alt. 2,200 ft. Rocky banks of the Middle Fork of the Holston River, near Marion, alt. 2,100 ft. Sandy shore of New River at foot of Farmer Mt., alt. 2,200 ft.

Nyssa aquatica, L. Lynchburg, alt. 500 ft. River banks and hills near Marion, alt. 2,100–2,500 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

In the higher altitudes the larger and older trees were very remarkable for the heavy, thick, almost corky bark, splitting into more or less regular, hexagonal sections. Near Marion some specimens were collected that had decidedly lobed leaves.

Sambucus Canadensis, L. Cliffs of Farmer Mt. along the New River, alt. 2,200 ft. About Lynchburg, alt. 500 ft. Fall of the Holston River, alt. 2,050 ft.

The specimens from the last cited locality are noteworthy on account of pubescence on the under surface of the leaves. A minute and inconspicuous pubescence often occurs in this species, but on the specimens here noted it has developed into conspicuous and rather stiff silky hairs.

Sambucus pubens, Michx. Western slope of Mt. Rogers, alt. 4,600 ft. On the Iron Mts., at Skull Gap, alt. 3,500 ft.

Viburnum acerifolium, L. On slope of Pine Glade Mt. near Nick's Creek, alt. 2,600 ft. On a spur of Pine Mt. alt. 4,000 ft. Falls of the Holston River, alt. 2,050 ft. On the Iron Mts., along Comer Creek, alt. 3,000 ft.

Viburnum cassinoides, L. Banks of Peak Creek, on Peak Mt., alt. 2,200 ft. Summit of White Rock Mt. alt. 4,400 ft. Rye Valley, alt. 2,300 ft.

Credited as growing only as far south as New Jersey. After two years exploration in the mountains of North Carolina and Virginia, it can be safely asserted that there it is the prevailing viburnum and grows with equal vigor on exposed mountain tops and in sheltered valleys. The species reaches greater development in the Southern Alleghenies than it does in the North.*

Viburnum dentatum, L. Along Peak Creek on Peak Mt. alt. 2,200 ft.

The specimens from this locality are a little more pubescent than usual, but are clearly the species to which they have been referred.

VIBURNUM FERRUGINEUM (T. & G.) Small.

V. prunifolium, L. var. *ferrugineum*, T. & G. A small tree twenty feet high. Leaves elliptical-ovate to elliptical-obovate, two to three and one-half inches long, often coriaceous when young, finely and sharply serrate petioled; petiole winged; wings of the petiole above and beneath, ribs and veins beneath and the mid-rib above ferruginous-tomentose; cymes compound, large, sessile or sometimes peduncled; rays four, rarely three or five; flowers large, three to three and one-half lines across; drupe large, five to seven lines long, broadly ovoid, covered with a bloom, seed nearly orbicular. (Plate 78.)

Along a stream on the southern cliffs of the Pinnacle near Cumberland Gap, Lee Co., alt. 2,500 ft. We also have specimens from Milledgeville, Georgia (Boykin, No. 2), in oak-wood, near Tallahassee, Florida (Rugel), Alabama (Buckley), Bayou Fasilier, Opelousas, Louisiana (Carpenter, No. 21), and Fredericksburg, Texas (Thurber, No. 83).

* Mem. Torr. Club, iii. 6, 27.

Viburnum alnifolium, Marsh. (*Viburnum lantanoides*, Michx.). Pine Mt., alt. 4,600 ft. Slopes and summit of White Top Mt., alt. from 4,800 to 5,678 ft. Along White Top Creek, between White Top and the Iron Mts., alt. 2,600 ft.

The specimens collected at the last locality are remarkable for the size of the cymes, some of which measured more than eight inches across, and although growing in the damp shade of an original forest where the sun seldom penetrates, the drupes were fully ripe, while the fruit of bushes two thousand feet higher on the mountain side had not yet begun to change color or ripen, notwithstanding that they grew in more open places. This observation serves to show how great an effect altitude has on a plant, even when strong influences are present to counteract it. In the valley the shrub reached a height of 5 m.

Viburnum prunifolium, L On the South Fork of the Holston River, near St. Clair's Bottom, alt. 2,200 ft. Ledges of the Holston River, opposite Marion, alt. 2,100 ft.

Triosteum perfoliatum, L. Southern slope of White Rock Mt., alt. 3,800 ft. Rocky banks of the Middle Fork of the Holston River, alt. 2,100 ft.

Symphoricarpos racemosus, Michx. Rocky banks of the Middle Fork of the Holston River, at the mouth of Hungry's Mother Creek, alt. 2,075 ft.

Hitherto Pennsylvania has been given as the southern limit of the range of this species. It will now have to be extended to Southwestern Virginia, as it occurs plentifully at the above cited locality. There is, also, a specimen in the Columbia College Herbarium, collected by Short in Kentucky.

Symphoricarpos Symphoricarpus (L). MacM. (*Symphoricarpos vulgaris*, Michx.). Banks of the Holston River at Marion, alt. 2,100 ft.

The note on the preceding species applies as well to this one. It is not rare in the mountains of North Carolina.*

Lonicera dioica, L. (*Lonicera glauca*, Hill.) Cliffs north of Bristol, alt. 1,800 ft.

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* Mem. Torr. Club, iii. 18, 27.

Evidently not collected in this region before, but found previously in the mountains of North Carolina.*

Lonicera Japonica, Thunb. Roadsides north of Abingdon, alt. 1,950 ft. On limestone ledges of Middle Fork of the Holston River, one mile south of Marion, alt. 2,100 ft.

The range of this much neglected species now extends from New York to North Carolina and across the mountains into West Virginia. It has probably escaped from cultivation and become naturalized in many parts of New England and the territory west of the mountains, but at present we have no record as to its occurrence there.

Diervilla Diervilla (L.) MacM. (*Diervilla trifida*, Mœnch.) Summit of White Rock Mt., alt. 4,400 ft.

It may be of interest to note that the only locality at which this species, usually common in the mountains, was observed during the journey was on the very summit of the white sandstone cliffs that crown the top of the White Rock Mt.

Cephalanthus occidentalis, L. Rocky banks of the New River at the base of Farmer Mt., alt. 2,100 ft. Near Lynchburg, alt. 500 ft.

Houstonia cærulea, L. Lynchburg, alt. 500 ft.

Not noticed in the mountains. The closely related species *H. serpyllifolia* seems to replace it throughout the upper slopes.

Houstonia serpyllifolia, Michx. Banks of Staley Creek near Marion, alt. 2,100 ft. Slopes and summit of White Top Mt., alt. 2,600–5,078 ft.

Houstonia purpurea, L. Southern slope of White Rock Mt., alt. 3,800 ft. On Pine Mt., alt. 3,500 ft. Near Marion, alt. 2,100 ft. Although observed at a number of localities this species is not by any means as plentiful, nor as widely distributed as it is in similar situations in the mountains of North Carolina.

Houstonia purpurea, L., var. PUBESCENS, Britton, n. var.

Erect, slender, densely pubescent, 6′–10′ high. Leaves ovate or lanceolate. On dry wooded hills west of Lynchburg, Campbell Co., alt. 600 ft. This may be *H. pubescens*, Raf. Med. Rep., 1808?

* Mem. Torr. Bot. Club, iii. 6.

Houstonia tenuifolia, Nutt. Cliffs of Farmer Mt. along the New River, alt. 2,200 ft. Along Peak Creek, on Peak Mt., alt. 2,200 ft. In sandy soil on the western slope of the Pinnacle near Cumberland Gap, alt. 3,000 ft.

Mitchella repens, L. Pine Mt., alt. 4,500 ft. Summit of the Iron Mts., alt. 3,400 ft. Banks of White Top Creek, alt. 2,600 ft. Slemp Creek, alt. 3,800 ft.

Showing great variation in the flowers, which were 3–6 merous, those with included stamens having apparently a longer tube than those with exerted stamens, and all variations were found on the same plant. At Green Cove P. O., Grayson Co., dry plants of *Mitchella* were sold under the name of "Squaw Root" for medicinal purposes.

Diodia teres, Walt. On the South Fork of the Holston River, near Add Wolf, alt. 2,300 ft. Sandy barrens below Abingdon, alt. 1,900 ft. Near Cumberland Gap, alt. 1,500 ft.

Galium Aparine, L. Banks of the Holston River near Marion, alt. 2,100 ft.

Galium Anglicum, L. Along road in the valley of the North Fork of the Holston River near Broad Ford, alt. 2,200 ft. About Lynchburg, alt. 500 ft., where it was thoroughly established.

Galium circæzans, Michx. On the Island, near Marion, alt. 2,100 ft. On Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. Slopes of Round Top Mt. west of Seven-mile Ford, alt. 2,800 ft. Woods about Lynchburg, alt. 500 ft.

Galium latifolium, Michx. Slopes of Pine Glade Mt., along Nick's Creek, alt. 2,600 ft. Southern slope of White Rock Mt., alt. 4,000 ft. Cliffs of Farmer Mt., along the New River, alt. 2,200 ft. Iron Mts., about Skull Gap, alt. 3,000 ft.

Galium latifolium, Michx., var. HISPIDUM, Small, n. var.

Plants forming dense tufts, strongly branching from the roots, a little more than 30 cm. tall. Stems densely hispid. Leaves lanceolate, rather broadly lanceolate pubescent on both sides with hispid hairs.

On spurs of the Iron Mts., along Hog-trough Creek, alt. 2,600 ft.

Galium lanceolatum, Torr. Western slope of Mt. Rogers, alt. 4,600 ft. White Top Mt., alt. 4,000 ft. Walker Mt., about Chatham Hill Gap, alt. 3,000 ft. Banks of Nick's Creek, alt. 2,500 ft.

According to Gray's Manual this species is said to occur in "dry woods, New England to North Michigan and Minnesota." The plant is not rare in New York, New Jersey, Eastern and Western Pennsylvania, and southward in the mountains of Virginia.

Galium tinctorium, L. In damp places in the valley between White Top and the Iron Mts., alt. 2,800 ft.

Galium pilosum, Ait. On Peak Mt., along Peak Creek, alt. 2,200 ft. About mouth of Brush Creek on the banks of the New River, alt. 2,200 ft.

Galium pilosum, Ait. var. *puncticulosum* (Michx.) Torr. and Gray. Near Lynchburg, alt. 500 ft.

Galium triflorum, Michx. Rocky banks of the Middle Fork of the Holston River near Marion, alt. 2,100 ft. Iron Mts., alt. 3,000 ft.

Dipsacus sylvestris, Mill. Plentiful along the main roads in the valleys of the Three Forks of the Holston River.

Vernonia Noveboracensis (L.) Willd. Along the South Fork of the Holston River, above Add Wolf, alt. 2,300 ft.

Eupatorium sessilifolium, L. Banks of Middle Fork of the Holston River near Marion, alt. 2,100 ft.

Eupatorium album, L. Western slope of the Pinnacle, near Cumberland Gap, alt. 3,000 ft.

It was interesting and noteworthy to find this species of *Eupatorium*, which is almost wholly restricted to the sea coast, growing high up on a dry mountain side. However, this is only one instance of a number of other cases of coast species occurring through the Southern mountains, especially at high altitudes. Prof. Scribner has detected this species in the mountains about White Cliff Springs, in Southeastern Tennessee, which locality is several hundred miles south of the Cumberland Gap, and the plant doubtless occurs at intermediate stations.

Eupatorium perfoliatum, L. Wet places on the island near Marion, alt. 2,100 ft.

Eupatorium purpureum, L. Along Nick's Creek, alt. 2,500 ft.

Eupatorium rotundifolium, L., var. *pubescens* (Muhl.), B. S. P. Western slope of the Pinnacle near Cumberland Gap, alt. 3,000 ft.

Quite an extension of the range of this plant to the west, as it has formerly been recorded as growing near the coast.

Laciniaria graminifolia (Pursh.) Kuntze. (*Liatris graminifolia*, Pursh.) On the slopes and summit of the Iron Mts., about Skull Gap, alt. from 2,500–3,400 ft. Banks of Dickey Creek, alt. 2,800 ft. Along Comer Creek in the Iron Mts., alt. 2,600 ft.

Laciniaria scariosa (L.) Hill, var. *squarrulosa* (Michx.), (*Liatris squarrulosa*, Michx. Fl. Bor. Am. ii. 92 (1803).). Slope of the Iron Mts., near Dickey Creek, alt. 2,800 ft. Western slope of the Pinnacle, near Cumberland Gap, alt. 3,000 ft. White Sulphur Springs, West Virginia, alt. 3,300 ft. (A. Brown). Probably a good species.

Chrysopsis graminifolia, Nutt. Sandy places on the western slope of the Pinnacle, near Cumberland Gap, alt. 3,000 ft.

Chrysopsis Mariana (L). Nutt. Banks of the South Fork of the Holston River above Add Wolf, alt. 2,300 ft.

The discovery of these species of *Chrysopsis* gives us two more additions to the mountain flora. The first species occurs in the western slope of the Blue Ridge and the latter on the western slope of the Cumberland Mountains.

C. graminifolia also occurs on the dry eastern slopes of the Blue Ridge in North Carolina.

Solidago Boottii, Hook. Slopes and summit of the Iron Mts. at Skull Gap, alt. 2,500–3,500 ft. Banks of Dickey Creek, east of the Iron Mts., alt. 2,800 ft.

Solidago bicolor, L. Eastern slope of the Iron Mts., alt. 2,800 ft.

Solidago cæsia, L. On Pinnacle, near Cumberland Gap, alt. 3,000 ft.

Solidago Canadensis, L. About Marion, alt. 2,100 ft.

Solidago monticola, T. and G. Slopes and summit of the Iron Mts., alt. 2,900–3,500 ft. Eastern slope of White Top Mt., alt. 4,600 ft.

Solidago serotina, Ait. Along Hog-trough Creek, alt. 2,600 ft.

Solidago ulmifolia, Muhl. Limestone ledges of Middle Fork Holston River, near Marion, alt. 2,100 ft.

Sericocarpus asteroides (L.) B. S. P. Slopes and summit of the Iron Mts., at Skull Gap, alt. 2,600–3,500 ft. Cliffs of Farmer Mt. along the New River, alt. 2,200 ft. Western slope of the Pinnacle, near Cumberland Gap, alt. 3,000 ft. Vicinity of Lynchburg, alt. 500 ft. Mts. about White Sulphur Springs, Greenbrier Co., W. Va., alt. 3,000 ft. (A. Brown).

Sericocarpus linifolius (L.) B. S. P. Appomattox, alt. 800 ft.

Aster infirmis, Michx. Slope of Pine Glade Mt., near Nick's Creek, alt. 2,600 ft. Slopes and summit of the Iron Mts., alt. 2,600–3,500 ft.

Aster undulatus, L. On the Pinnacle, near Cumberland Gap, alt. 3,000 ft. Along Dickey Creek, alt. 2,000 ft.

Aster macrophyllus, L. Marion, alt. 2,100 ft. Along Nick's Creek, alt. 2,500 ft.

Erigeron annuus (L.) Pers. Banks of Nick's Creek, alt. 2,500 ft. Vicinity of Marion, alt. 2,100 ft.

Erigeron pulchellus, Michx. (*E. bellidifolius*, Muhl.) Mountains east of Buchanan, Botetourt Co., alt. 1,100 ft. On the Iron Mts., alt. 3,000 ft. Vicinity of Marion, alt. 2,100 ft.

Erigeron Philadelphicus, L. Along the South Fork Holston River, near Add Wolf, alt. 2,200 ft.

Erigeron ramosus (Walt.) B. S. P. Vicinity of Marion, alt. 2,100 ft. On Brushy Mt., alt. 2,800 ft. Along Nick's Creek, alt. 2,600 ft.

Antennaria plantaginifolia (L.) Hook. Summit of White Top Mt., alt. 5,678 ft. Summit of Pond Mt., east of Marion, alt. 3,400 ft.

Gnaphalium obtusifolium, L. Eastern slope of the Iron Mt., about Skull Gap, alt. 3.000 ft.

Gnaphalium purpureum, L. Eastern slope of White Rock, Mt., alt. 4,000 ft. Along Sugar Creek, alt. 2,400 ft. About Lynchburg, alt. 500 ft.

Polymnia Canadensis, L. Slope of Farmer, Mt., along the New River, alt. 2,200 ft.

Polymnia Canadensis, L., var. *radiata*, A. Gray. In a rocky rivulet on the Southern cliffs of the Pinnacle, near Cumberland Gap, alt. 2,550 ft.

Polymnia Uvedalia, L. Woods near the South Fork Holston River, alt. 2,200 ft. Banks of the Middle Fork Holston River at Marion, alt. 2,100 ft.

Silphium trifoliatum, L. Valley of the Middle Fork Holston River below Marion, alt. 2,100 ft. White Sulphur Springs, W. Va., alt., 3,000 ft. (A. Brown).

Ambrosia artemisiæfolia, L. Shore of Middle Fork Holston River, Marion alt. 2,100 ft.

Parthenium integrifolium, L. About Lynchburg, alt. 500 ft.

Xanthium spinosum, L. Along McGrady's Creek, foot of White Rock Mt., alt. 2.200 ft. Vicinity of Wytheville, alt. 2000 ft. Along the South Fork Holston River near Add Wolf, alt. 2,200 ft.

Heleopsis helianthoides (L.) B. S. P. Banks of the Middle Fork Holston River at Marion, alt. 2,100 ft. Along Nick's Creek, alt. 2,600 ft. On the Iron Mts., by Hog-trough Creek, alt. 2,600 ft. On Chestnut Creek, near Gossan, alt. 2,300 ft.

Rudbeckia laciniata, L. Along Hog-trough Creek, alt. 2,600 ft.

Rudbeckia triloba, L. Slope of White Rock Mt., alt. 3,800 ft. Vicinity of Cumberland Gap, alt. 1,500 ft.

Rudbeckia Brittonii, Small, n. sp. Perennial, stout, hispid. Stem erect 5–7 dm. tall, simple, channeled, very hispid, leafy throughout or naked above; radical leaves ovate or ovate-lanceolate, about 1 dm. long, obtuse, on petioles 4–8 cm. long, petioles somewhat clasping, upper leaves obovate, on broadly winged petioles, inclined to be one-lobed, uppermost leaves ovate or ovate-lanceolate, sessile, cordate, all of much the same size, distantly serrate-crenulate, strigose on both surfaces; involucre foliaceous, bracts oblong, 2–3 cm. long; head 1.3 cm. high; rays yellow, twelve, 2.5–3.5 cm. long, two-cleft at the apex; outer chaff oblanceolate, inner almost linear, acute, purple tipped and fringed with jointed hairs, style-tips slender, acute. (Plate 79.)

A very distinct species related to *Rudbeckia hirta* by its acute style-tips, but in appearance somewhat resembling large forms of *R. spathulata*, which however has obtuse style-tips.

Collected in thickets on the rather dry, southern slopes of White Rock Mountain, at altitude ranging from 3,800–4,000 ft.

Helianthus divaricatus, L. Summit of Brushy Mt., alt. 3,000 ft. Western slope of the Pinnacle near Cumberland Gap, alt. 3,200 ft.

Helianthus parviflorus, Bernh. Slope of Pine Glade Mt., along Nick's Creek, alt. 2,500 ft. On the Pinnacle near Cumberland Gap, alt. 3,000 ft. Slopes of the Iron Mts., along Comer Creek, alt. 3,000 ft. Along the Middle Fork Holston River at Marion, alt. 2,100 ft.

Extremely variable as to the size of the flowers and leaves, as well as in its manner of branching, and is the prevailing species of the southern Alleghanies.

Actinomeris alternifolia (L.) D. C. Sandy shore of the Middle Fork Holston River at Marion, alt. 2,150 ft. Above Wallace Switch, alt. 1,900 ft.

Coreopsis major, Walt., var. *Oemleri* (Ell.) Britton (*C. Oemleri*, Ell.) Round Top Mt., near Seven-mile Ford, alt. 3,000 ft. On Farmer Mt., along the New River, alt. 2,200 ft. Along Nick's Creek, alt. 2,300 ft. Vicinity of Marion, alt. 2,100 ft.

Coreopsis verticillata, L. Near Lynchburg, alt. 500 ft.

Bidens bipinnata, L. Rocky shore of Middle Fork Holston River near Marion, alt. 2,100 ft.

Galinsoga parviflora, Cav. Streets and waste places about Marion, alt. 2,100 ft.

Helenium autumnale, L. Along Hog-trough Creek, in slopes of the Iron Mts., alt. 2,600 ft.

Achillea Millefolium, L. At different points along Hungry's Mother Creek, alt. 2,200 ft. On Walker Mt., at Lyon's Gap, alt. 2,800 ft.

Anthemis Cotula, L. Vicinity of Marion, alt. 2,100 ft. Near Lynchburg, alt. 500 ft.

Chrysanthemum Leucanthemum, L. Along Hungry's Mother Creek, alt., 2,100 ft.

Cacalia atriplicifolia, L. Along Peak Creek, on Peak Mt., alt. 2,200 ft.

Cacalia reniformis, Muhl. On the eastern slope of White Top Mt., ranging from 3,000–5,000 ft.

Erechthites hieracifolia (L.) Raf. Along Nick's Creek, alt. 2,500 ft.

Senecio aureus, L. Swamps on Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. Wet places along Bear Creek, alt. 2,400 ft. Swamp north of Bristol, alt. 1,800 ft.

Senecio obovatus, Muhl. Along East Fork Walker Creek, alt. 2,250 ft. Dry banks in Hungry Hollow, alt. 2,200 ft. On Staley's Knob, near Marion, alt. 2,400 ft. Roanoke, alt. 1,000 ft. Limestone ledges of the Holston River, near Marion, alt. 2,100 ft. Including *S. Elliottii*, T. & G., a southern form with thicker and almost orbicular root leaves, found at the last quoted station.

Senecio Smallii, Britton (*S. aureus* var. *angustifolius*, Britton, Mem. Torr. Club, ii. 39). Near Hutton's Branch, alt. 2,300 ft. Northeast slope of White Top Mt., alt. 4,600 ft. Along Staley Creek, near Marion, alt. 2,200 ft. On a spur of Pine Mt., alt. 4,000 ft. Vicinity of Lynchburg, alt. 500 ft.

Arctium minus, L. Banks of Peak Creek, on Peak Mt., alt. 2,200 ft. Vicinity of Cumberland Gap, alt. 1,500 ft. The flowers of the specimens from Cumberland Gap were almost white.

Carduus altissimus, L. Along Hog-trough Creek, near the base of the Iron Mts., alt. 2,600 ft.

Carduus lanceolatus, L. Grassy meadow near summit of White Top Mt., alt. 5, 500 ft. Along Hog-trough Creek, alt. 2,600 ft. Banks of the Middle Fork Holston River, near Marion, alt. 2,100 ft. Skull Gap in the Iron Mts., alt. 3,400 ft.

Plants from the last two cited localities seem to vary from the type. The plant is more slender, the leaves less divided and the flowers smaller. This form was collected in 1889 about Long Pond in the mountains of Luzerne county, Pennsylvania, by Small & Heller.

Adopogon Virginicum (L.) Kuntze (*Krigia amplexicaulis* Nutt). Southern slope of White Rock Mt., alt. 3,800 ft.

Adopogon Carolinianum (Walt.) Britton (*Krigia Virginica*, Willd.). Vicinity of Lynchburg, alt. 500 ft.

Hieracium Marianum, Willd. Ledges of Farmer Mt., along the New River, alt. 2,300 ft.

Hieracium paniculatum, L. Eastern slope of White Top Mt., alt. 4,000 ft.

Hieracium venosum, L. Brushy Mt., alt. 2,800 ft. About Lynchburg, alt. 500 ft.

Prenanthes Serpentaria, Pursh. Slopes and summit of the Iron Mts., about Skull Gap, alt. 2,500–3,400 ft. Slopes of White Top Mt., 3,000 ft.

Taraxacum Taraxacum (L.) Karst. Eastern slope of White Top Mt., alt. 5,000 ft. Pond Mt., east of Marion, alt. 3,000 ft.

Lactuca Canadensis, L. Along Peak Creek, on Peak Mt., alt. 2,200 feet. Nick's Creek, alt. 2,500 feet. Banks of the New River, above Ivanhoe, alt. 2,200 ft.

Sonchus asper (L.) Willd. Near Saltville, the the North Fork Holston River, alt. 2,200 ft. Marion, on the Middle Fork Holston River, alt., 2,100 ft.

Tragopogon porrifolius, L. Old fields about Marion, alt. 2,100 ft.

Lobelia inflata, L. Along Middle Fork Holston River, near Marion, alt. 2,100 ft. Below Chilhowie, alt. 2,000 ft. Banks of Hog-trough Creek, alt. 2,600 ft.

Lobelia cardinalis, L. Swamp near Nick's Creek, alt. 2,500 ft.

Lobelia syphilitica, L. Along Hog-trough Creek, on the Iron Mts., alt. 2,600 ft.

Lobelia spicata, Lam. Barrens below Abingdon, alt. 1,900 ft. Near Lynchburg, alt. 500 ft.

Specularia perfoliata, (L.) A. D. C. Banks of the Middle Fork Holston River at Marion, alt. 2,100 ft. Southern slope of White Rock, Mt., alt. 3,500 ft.

Campanula Americana, L. Bluffs of the Middle Fork Holston River near Marion, alt. 2,150 ft. Woods below Chilhowie,

alt. 2,000 ft. On the Pinnacle near Cumberland Gap, alt. 2,500 ft. Ravine along Reed Creek, near Wytheville, alt. 2.000 ft.

Campanula divaricata, Michx. Cliffs along Dicky Creek, alt. 2,600 ft. Summits of the Iron Mts., from 2,500 to 3,500 ft. On Brushy Mt., northeast of Marion, alt. 2,800 ft. Rocky banks along Hog-trough Creek, alt. 2,600 ft.

Gaylussacia resinosa (Ait.) T. & G. Summit of Pond Mt., east of Marion, alt. 3,400 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Lynchburg, alt. 500 ft.

Vaccinium Canadense, Kalm. Mountain sides along Peak Creek, alt. 2,200 ft.

The discovery of *Vaccinium Canadense* at this station extends its range a considerable distance southward. Heretofore its southern limit was thought to be Northern Pennsylvania. Pulaski County is so near the North Carolina boundary that we suspect this *Vaccinium* may occur there and will possibly be found in the higher mountains of the northwestern corner of the State.

The specimens collected in Virginia are not exactly like the ordinary plant, but are glandular, instead of being simply pubescent.

Vaccinium erythrocarpon, Michx. Brushy Mt., alt. 3,100 ft. Summit of White Top Mt., alt. 5,678 ft.

Vaccinium pallidum, Ait. Summit of White Top Mt., alt. 5,678 ft. Northeastern slope of White Top Mt., 3,500 ft. On a spur of Pine Mt., alt. 4,000 ft.

An excellent species of blueberry from both a botanical and epicurean point of view. The prevailing *Vaccinium* in the southern Alleghanies at elevations above 4,000 ft.

Often many square miles of the southern slopes of the higher mountain peaks in North Carolina, and the surrounding territory are covered with this species which grows to a height of four to six feet and bears great quantities of fruit of an extraordinary size and a particularly fine flavor.

Vaccinium stamineum, L. Brushy Mt., alt. 2,800 ft. Walker Mt., Chatham Hill Gap, alt. 2,500–3,500 ft. Buchanan, alt. 1,100 ft.

Vaccinium vacillans, Soland. Along Peak Creek, on Peak Mt., alt. 2,200 ft. Brushy Mt., East of Marion, alt. 3,100 ft. Nick's Creek, east of Marion, alt. 2,600 ft.

Gaultheria procumbens, L. Nick's Creek, east of Marion, alt. 2,600 ft. Peak Creek, on Peak Mt., alt. 2,200 ft.

Xolisma ligustrina (L.) Britton.*

(*Andromeda ligustrina* Muhl.; *Vaccium ligustrinum* (L.) *Lyonia ligustrina*, D. C. Peak Creek, on Peak Mt., alt. 2,200 ft. Dickey Creek at the base of the Iron Mts., alt. 2,700 ft. Summit of White Rock Mt., alt. 4,400 ft.

Pieris floribunda (Pursh) Benth. & Hook, (*Andromeda floribunda*, Pursh.) Peak Creek, on Peak Mt., alt. 2,200 ft.

Contrary to the usual habit of this *Andromeda*, it was growing abundantly on a very dry and sunny mountain side.

Leucothoë recurva (Buckl.) A. Gray. Pond Mt., alt. 3,000 ft. Along Nick's Creek, alt. 2,500 ft. Banks of Peak Creek, on Peak Mt., alt. 2,200 ft. Northern slope of White Top Mt., alt. 3,000 ft.

Oxydendrum arboreum (L.) D. C. Lynchburg, alt. 500 ft. Near Wallace Switch, alt. 1,900 ft. Walker Mt., alt. 3,000–3,500 ft. Skull Gap, Iron Mts., alt. 3,000–3,500 ft.

Epigæa repens, L. Summit of White Top Mt., alt. 5,678 ft. Pond Mt., east of Marion, alt. 3,000 ft. Walker Mt., Chatham Hill Gap, alt. 3,000 ft. Staley Creek, alt. 2,100 ft.

The "trailing arbutus," one of our early spring flowers in the North, was still in bloom as late as May 29th, on the bleak summit of White Top.

Kalmia latifolia, L. Lynchburg, alt. 500 ft. Bear Creek, near foot of Walker Mt., alt. 2,400 ft. Summit of White Rock Mt., alt. 4,400 ft. Along Peak Creek, on Peak Mt., alt. 2,200 ft.

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*I am of the opinion that the treatment of the groups included by Asa Gray in *Andromeda*, is not as satisfactory as that of Bentham and Hooker, where *Andromeda* is restricted to *A. Polifolia*, L., and *Lyonia*, Nutt, *Pieris*, Don and *Zenobia* Don recognized as genera. In Amer. Month. Mag. iv. 193 (1819) Rafinesque suggests the name *Xolisma* for the *Lyonia*, Nutt., a homonym of his own *Lyonia* of 1808, but he neither defines it nor cites species. In order to maintain this name, I here cite the synonyms of this species. N. L. B.

Measurements of one *Kalmia* tree were taken near Green Cove at the base of White Top Mt., with the following results:

Circumference of trunk 6 in. from the ground, ... 7 ft. 2 in.
" " 1 ft. " " . . . . . 4 " 3 "
" " 3 " " " . . . . . 3 " 6 "
Height twenty-five feet.

An apparently distinct form was collected on Peak Mt. It is smaller throughout, the leaves narrower and more acuminate at both ends. The same was found in 1891 on Blowing Rock Mt., North Carolinia, by Small and Heller, at an altitude of 4,200 ft. We have not seen this form in flower. It may be interesting to record that the stumps and roots of *Kalmia* furnish quite a livelihood to the inhabitants of the mountains. They are taken from the soil and shipped in great quantities to the North, where they are made into "genuine Briarwood pipes" for the market. Laurel, the common name of this species, is not known in the South, where the universal name for it is " Ivy."

Azalea lutea, L.* (*Azalea calendulacea*, Michx.) Staley Creek, near Marion, alt. 2,400 ft. Slopes of White Top Mt., alt. 2,600–3,500 ft. Fox Creek on Pine Mt., alt. 3,000–3,500 ft. Summit White Rock Mt., alt. 4,400 ft.

On White Top and Pine Mt. *A. calendulacea* in several instances reached the height of over 5 meters. On White Rock Mt. many acres were covered with it, not more than 1 m. in height, the flowers very large and of every possible shade of yellow and flame color.

Azalea canescens, Michx. Kate's Mt., White Sulphur Springs, W. Va., alt. 3,300 ft. Chatham Hill Gap, Walker Mt., alt. 2,700–3,500 ft.

In both localities the specimens of this species collected, seemed to hold their characters very well, the flowers rose color, fragrant, the corollas very glandular, and the under surface of the leaves more or less canescent with stiff white hairs. On Walker Mt. they were growing along the edge of a stream and in a swamp, and were 1–2 meters in height.

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*This must be the *Azala lutea* of Linnæus, Sp. Pl. Ed. 1, in part.

Azalea nudiflora, L. Chatham Hill Gap, Walker Mt., alt. 2,700 ft.

The only locality where this species was seen. It was scarce, hardly more than 30 cm. high with the characteristic, light pink hirsute corollas and glabrous leaves.

Rhododendron Catawbiense, Michx. Chatham Hill Gap road, Walker Mt., alt. 3,000 ft. Nick's Creek, east of Marion, alt. 2,800 ft. Summit White Top Mt., alt. 5,678 ft.

Rhododendron maximum, L. Slopes of White Top Mt., along White Top Creek, alt. 2,600–4,000 ft. Slopes of the Iron Mts., near Skull Gap, alt. 3,000–3,500 ft.

Menziesia globularis, Salisb. Slopes and summit of White Top Mt., alt. 3,000–5,678 ft.

Remarkable on White Top for the size of the corollas, which were 8 mm. or more long, greenish-white with reddish tips and not at all globular.

Pyrola rotundifolia, L. Farmer Mt., on the New River, alt. 2,200 ft. Iron Mts., above South Fork of the Holston, alt. 3,000 ft.

Chimaphila maculata (L.) Pursh. Vicinity of Lynchburg, alt. 500 ft.

Clethra acuminata, Michx. Skull Gap, Iron Mts., alt. 3,000 ft. Slopes of Pine Mt., above Troutdale, alt. 3,000–4,000 ft. White Top Valley, along White Top Creek, alt. 2,600 ft.

Monotropa uniflora, L. Hills east of Marion, alt. 2,500 ft.

Hypopithys Hypopithys (L.) Small. (*Hypopithys Monotropa*, Crantz; *Monotropa Hypopithys*, L.). Hills east of Marion, alt. 2,500 ft.

Galax aphylla, L. Woods about Marion, alt. 2,100 ft. Hills along Bear Creek, alt. 2,400 ft. Slope of Pond Mt., east of Marion, alt. 3,000 ft.

Lysimachia quadrifolia, L. Vicinity of Marion, alt. 2,100 ft. Pond Mt., alt. 3,000 ft.

Steironema ciliatum (L.) Raf. Banks of the Middle Fork Holston River, above Marion, alt. 2,100 ft. About Lynchburg, alt. 500 ft.

A very showy plant about Marion, varying in height from one foot, in dry situations, to five feet in damp places.

Steironema lanceolatum (Walt.) A. Gray. On Peak Mt., along Peak Creek, alt. 2,300 ft. Hillside north of Pulaski City, alt. 2,200 ft. Mountains about White Sulphur Springs, W. Va., alt. 3,200 ft.

Anagallis arvensis, L. About Cumberland Gap, alt. 1,500 ft. Along the railroad on Peak Mt., alt. 2,200 ft.

Samolus floribundus, H. B. K. At Bristol, alt. 1,800 ft. In Bear Creek, alt. 2,400 ft. In the Middle Fork Holston River at Marion, and at the Falls five miles below, alt. 2,050–2,100 ft.

Diospyros Virginiana, L. On the western slope of the Pinnacle near Cumberland Gap, alt. 3,000 ft.

Mohrodendron Carolinum (L.) Britton. (*Halesia tetraptra*, L'Hér). Ledges of Farmer Mt., along the New River, alt. 2,200 ft.

Fraxinus Americana, L. Eastern slope of White Top Mt., alt. 4,600 ft. Hills east of Marion, alt. 2,400 ft. Along Slemp Creek in Rye Valley, alt. 2,800 ft.

The specimens from the locality in Rye Valley should be refered to *F. Americana*, var. *microcarpa*, A. Gray, if this variety could be maintained.

It was published by Mr. Buckley as *F. albicans*, and by Dr. Vasey as *F. Curtissii*, and then finally by Dr. Gray as cited above. It is evident now that the variety is founded on abortive fruit. This is clearly shown by the fact that the tree in question produced on the same panicles in addition to some perfect and mature fruit a large number of small and seedless samaras.

Fraxinus viridis, Michx. f. Base of the Iron Mts., alt. 2,500 ft.

Apocynum cannabinum, L. Vicinity of Marion, alt. 2,100 ft.

Apocynum androsæmifolium, L. On Walker Mt., at Shannon Gap, alt. 2,800 ft. Summit of Pond Mt., east of Marion, alt. 3,000 ft.

Acerates viridiflora (Raf.) Ell. var. *lanceolata* (Ives) Torr. Vicinity of Lynchburg, alt. 500 ft.

Asclepias exaltata (L.) Muhl. Southern slope of White Rock Mt., alt. 4,000 ft. Slopes of Pine Glade Mt., near Nick's Creek, alt. 2,600 ft. Island at Marion, alt. 2,100 ft. On Walker Mt., at Shannon Gap, alt. 2,800 ft.

Asclepias incarnata, L. Swamp near Wallace Switch, alt. 1,900 ft. Island near Marion, alt. 2,100 ft. Slope of Farmer Mt., along the New River, alt. 2,200 ft.

Asclepias obtusifolia, Michx. In Shannon Gap, on Walker Mt., alt. 2,800 ft.

Asclepias Syriaca, L. Near the South Fork Holston River about St. Clair's Bottom, alt. 2,200 ft. Banks of Hog-trough Creek in the slopes of the Iron Mts., alt. 2,600 ft. Below Lyon's Gap, near Walker Mt., alt. 2,600 ft. On Peak Mt., alt. 2,200 ft. Flowers varying to light cream-color.

Asclepias quadrifolia, L. Mountains about Nick's Creek, alt. 2,800 ft. Along Hungry's Mother Creek, alt. 2,200 ft. Pond Mt. east of Marion, alt. 3,000 ft.

Asclepias tuberosa, L. Along Peak Creek on Peak Mt., alt. 2,200 ft. On the North Fork Holston River near Broad Ford, alt. 2,200 ft.

Asclepias variegata, L. On Walker Mt., at Shannon Gap, alt. 2,800 ft. Round Top Mt., west of Seven-mile Ford, alt. 3,000 ft. Banks of Peak Creek, on Peak Mt., alt. 2,200 ft.

Obolaria Virginica, L. Woods along Nick's Creek, alt. 2,500 ft.

Phlox maculata, L. Rocky banks at the Falls of the Holston River, alt. 2,050 ft.

Phlox glaberrima, L. Banks of Peak Creek, on Peak Mt., alt. 2,200 ft.

The leaves of this species are quite variable. On the specimens collected the upper leaves run to broadly ovate, whilst the lower ones are narrowly oblong. The stems are also sparing pubescent, the hairs being arranged in lines.

Phlox paniculata, L. Slopes of the Pinnacle, near Cumberland Gap, alt. 2,500 ft.

A pubescent form of the species with rather small flowers and broad leaves, seems to be a distinct form in the Southern mountains.

Phlox reptans, Michx. Banks of Staley Creek, near Marion, alt. 2,200 ft. Slopes of Pine Mt., alt. 3,000 ft. Spurs of Walker Mt., near East Fork Walker Creek, alt. 2,300 ft.

At certain places in the deep woods this very beautiful and showy species was quite abundant and presented a most beautiful sight.

Phlox subulata, L. Dry, stony ledges on Kate's Mt., W. Va., alt. 3,300 ft.

Phlox ovata, L. Hillsides along McHenry Creek, alt. 2,600 ft.

Polemonium reptans, L. Meadow near Hungry's Mother Creek, alt. 2,300 ft. Sandy banks of the Holston River at the Falls, alt. 2,050 ft.

Hydrophyllum Canadense, L. On the southern slope of White Rock Mt., alt. 4,000 ft. Hills about Marion, alt. 2,200 ft. Under cliffs along Hungry's Mother Creek, alt. 2,200 ft.

Hydrophyllum Virginicum, L. Mountains about Buchanan, alt. 1,300 ft. Along Hungry's Mother Creek, alt. 2,200 ft. Summit of Walker Mt., about Chatham Hill Gap, alt. 3,300 ft. Deep woods along Hutton's Branch, alt. 2,500 ft. Western slope of Mt. Rogers, alt. 5,000 ft.

At all the above localities only the dark purple form of this *Hydrophyllum* was found, as was the case in the mountains of North Carolina on a previous journey.*

Hydrophyllum macrophyllum, Nutt. Shaded banks of the Middle Fork Holston River at Marion, alt. 2,100 ft. Along Hungry's Mother Creek, alt. 2,200 ft. Southern slope of White Rock Mt., alt. 4,000 ft.

This species was rather plentiful at the different localities given, and seemed to be distributed generally through the territory of Southwestern Virginia, while fifty miles north in the mountains of North Carolina, in similar situations not a single plant was observed during the summer of 1891.

Phacelia bipinnatifida, Michx. Southern slope of White Rock Mt., alt. 3,500 ft.

Gray's Synoptical Flora indicates the range of this species as follows "Ohio and Illinois to Alabama" thus cutting out all of the mountains except some of the western spurs of the Cumberlands. This range is not correct as the species extends over the summits

*Mem. Torr. Bot. Club, iii. 5.

of the Alleghanies and the Blue Ridge. On the present journey it was collected on the eastern slopes of the Alleghanies at the above given locality, and the year before on Blowing Rock Mt., North Carolina, on the eastern slopes of the Blue Ridge.*

Phacelia fimbriata, Michx. Eastern slope of White Top Mt., alt. 4,500–5,000 ft. Western slope of Mt. Rogers, alt. 4,800 ft.

This rare and beautiful species of *Phacelia* exists in inexhaustible quantities on Mt. Rogers and White Top. In some places, especially along the edges of the mountain brooks, it grows in matted patches.

Phacelia Purshii, Buckley. At different points along the Middle Fork Holston River about Marion, alt. 100 ft.

Phacelia parviflora, Pursh. Vicinity of Roanoke, alt. 1,000 ft.

Phacelia parviflora was not collected nor observed at any other locality. It seems to be restricted more to the lower country and does not get far into the mountains.

Symphytum officinale, L. Along Hutton's Branch, alt. 2,300 ft. River banks at Marion, alt. 2,100 ft. Bristol, alt. 1,800 ft.

Onosmodium Carolinianum (Lam.) D. C. Roadsides near Sevenmile Ford, alt. 2,000 ft. Banks of the Holston River below the Falls, alt. 2,050 ft.

Echium vulgare, L. Roadsides below Marion, alt. 2,100 ft.

Cynoglossum officinale, L. About Marion, alt. 2,100 ft. In Rye Valley, alt. 2,500 ft. Roadsides about Buchanan, alt. 1,100 ft. Both the red and white forms were plentiful.

Cynoglossum Virginicum, L. Low places by the East Fork Walker Creek and Hungry's Mother Creek, alt. 2,300 ft. Pond Mt., east of Marion, alt. 3,000 ft. Meadows north of Bristol, alt. 1,800 ft.

Lithospermum arvense, L. Vicinity of Roanoke, alt. 1,000 ft.

Lappula Virginiana (L.) Greene. Shaded banks of Reed Creek, alt. 2,000 ft. Hill sides about Cumberland Gap, alt. 1,800 ft.

Ipomœa pandurata (L.) Meyer. Open places near Cumberland Gap, alt. 1,600 ft. About Lynchburg, alt. 500 ft.

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*Mem. Torr. Bot. Club iii. 6.

Convolvulus repens, L. In an old field along the South Fork Holston River, alt. 2,300 ft.

Convolvulus spithamæus, L. Pond Mt. east of Marion, alt. 3,000 ft.

Lycopersicum esculentum, Mill. Along the N. & W. R. R., above Wallace Switch, alt. 1,900 ft.

Solanum Carolinense, L. Common in all situations about Marion, alt. 2,100 ft.

Solanum Dulcamara, L. Along St. Clair's Creek, near the Iron Mts., alt. 2,300 ft. Waste places about Marion, alt. 2,100 ft. White Top Creek, at base of Chestnut Ridge, alt. 2,600 ft.

Solanum nigrum, L. On the South Fork Holston River, near St. Clair's Bottom, alt. 2,200 ft.

Physalis lanceolata, Michx. Barrens about Cumberland Gap, alt. 1,600 ft.

Physalis angulata, L. Woods about Cumberland Gap, alt. 1,600 ft.

Physalis Philadelphica, Lam. Dry woods about Cumberland Gap, alt. 1,700 ft.

Physalis Virginiana, Mill. Near Saltville, alt. 2,200 ft.

PHYSALODES PHYSALOIDES (L.) Britton. *Nicandra physaloides*, Gærtn. *Atropa physaloides*, L. Open places near Cumberland Gap, alt. 1,600 ft.

Lycium vulgare (Ait.) Dun. Along Hutton's Branch, alt. 2,400 ft.

Datura Stramonium, L. Along roadsides at different points in Smyth county.

Datura Tatula, L. About Marion, alt. 2,100 ft.

In the South both species of *Datura* seem to be favorite resorts for a species of *Sphinx*, whose movements and actions it was very interesting to watch just about the time of sunset, and if one would pick a branch he would be followed wherever he went by one or two of these large moths.

Verbascum Blattaria, L. Along runs near Marion, alt. 2,200 ft. Near Lynchburg, alt. 500 ft.

Verbascum Thapsus, L. River banks at Marion, alt. 2,100 ft. Near Add Wolf, on the South Fork of the Holston River, alt. 2,200 ft.

Scrophularia Marylandica, L. About Marion, alt. 2,100 ft.

Pentstemon hirsutus (L.) Willd. Southern slope of White Rock Mt., alt. 3,800 ft.

Pentstemon lævigatus, Soland. Near Lynchburg, alt. 500 ft.

Pentstemon lævigatus, Soland. var. *canescens*, Britton. Vicinity of Lynchburg, alt. 500 ft. Slopes of Kate's Mt., near White Sulphur Springs, W. Va., alt. 3,300 ft.

Mimulus alatus, Soland. Swamp near Wallace Switch, alt. 1,900 ft.

Mimulus ringens, L. Near the source of Dicky Creek, in the Iron Mts., alt. 3,000 ft. River banks about Marion, alt. 2,100 ft.

Gratiola Virginiana, L. Muddy swamps along Dicky Creek, on the Iron Mts., alt. 2,800 ft.

Reaching an astonishing size, by actual measurement some plants grow to be sixteen inches tall with lateral branches six to eight inches long.

Ilysanthes gratioloides (L.) Benth. Damp places on ledges of Farmer Mt., alt. 2,200 ft.

Veronica Americana, Schwein. Staley Creek, near Marion, alt. 2,200 ft. Banks of the South Fork Holston River, near Add Wolf, alt. 2,300 ft. Southern slope of White Rock Mt., alt. 3,800 ft.

Veronica Anagallis, L. Wet places above Bristol, alt. 1,800 ft. Slopes of Round Top Mt., alt. 2,400 ft. Near Marion, alt. 2,100 ft.

Recorded as growing only as far south as New Jersey.* It is much more plentiful in the Southern States than in the North, often appearing as an introduced plant. At some localities it attains a remarkable size.†

Veronica arvensis, L. Mountain sides east of Buchanan, alt. 1,100 ft. Damp cliffs of Hungry's Mother Creek, alt. 2,200 ft. Slope of Pine Mt., alt. 3,500 ft.

Veronica officinalis, L. Summit of White Top Mt., alt. 5,678 ft. By streams in Hungry Hollow, alt. 2,400 ft.

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*Man. Bot. N. U. S. (Revised), p. 386.

†Mem. Torr. Club, iii. 15, 31.

Veronica Virginica, L. South Fork Holston River, near St. Clair's Bottom, alt. 2,200 ft.

Gerardia flava, L. Mountain sides along Peak Creek, alt. 2,200ft.

Gerardia lævigata, Raf. Different points on the Iron Mts., alt. 2,500–3,000 ft.

Pedicularis Canadensis, L. Slopes of Kate's Mt., W. Va., alt. 3,700 ft. Summit of Pond Mt., east of Marion, alt. 3,000 ft. Walker Mt., alt. 3,000 ft.

Melampyrum latifolium, Muhl. Near Marion, alt. 2,100 ft. Slopes and summit of White Top Mt., alt. 4,000–5,600 ft.

Melampyrum lineare, Lam. Slopes and summits of the Iron Mts., alt. 2,800–3,400 ft.

Anoplanthus uniflorus (L.) Endl.* (*Aphyllon uniflorum*, A. Gray.) Slopes of Pine Mt., alt. 3,500 ft. Staley's Knob east of Marion, alt. 2,600 ft. Pond Mt., alt. 3,000 ft. (Flowers white.)

Conopholis Americana (L.f.) Wallr. In deep shaded ravines about the Falls of the Holston River, alt. 2,050 ft. Slopes of Pine Mt., alt. 3,500 ft. Ravine at the mouth of Hungry's Mother Creek, alt. 2,075 ft.

Epiphegus Virginiana (L.) Bart. On the eastern slope of White Top Mt., 5,000 ft.

Dianthera Americana, L. Flat shores of the North Fork Holston River, near Broad Ford, alt. 2,200 ft.

Ruellia ciliosa, Pursh. Vicinity of Lynchburg, alt. 500 ft.

Phryma Leptostachya, L. Hillsides near Wallace Switch, alt. 1,900 ft.

Verbena angustifolia, Michx. Dry roadsides near Lyon's Gap, alt. 2,300 ft. Barrens about Cumberland Gap, alt. 1,500 ft. Along the Middle Fork Holston River, below Chilhowie, alt. 2,000 ft. Near Lynchburg, alt. 500 ft.

Verbena hastata, L. Marion, alt. 2,100 ft. Banks of the South Fork Holston River, alt. 2,200 ft. Along Hogtrough Creek, on the Iron Mts., alt. 2,800 ft.

**Anoplanthus* is apparently the first available name for this genus. *Aphyllon*, Mitch. (1748) is ahead of Linnæus Sp. Pl. Ed. 1 (1753), and is thus ruled out.

Verbena officinalis, L. Marion, alt. 2,100 ft. Near Cedarville, alt. 1,900 ft.

Verbena riparia, Raf. Banks of Staley Creek at Marion, alt. 2,200 ft. Banks of Cedar Creek, alt. 1,900 ft.

This neglected *Verbena* was re-discovered at several localities in North Carolina in 1891.* A careful search was made for it in similar localities in the valleys of Southwestern Virginia, and we were rewarded by finding it in the valley of the Middle Fork of the Holston River, on the banks of the two creeks mentioned above.

Verbena urticæfolia, L. Vicinity of Marion, alt. 2,100 ft.

Collinsonia Canadensis, L. Woods near Nick's Creek, alt. 2,500 ft.

Mentha Canadensis, L. Muddy shores of Reed Creek, alt. 2,000 ft.

Mentha piperita, L. Clay gullies about Cumberland Gap, alt. 1,600 ft.

The *Mentha piperita* found growing on the dry, hot plains about Cumberland Gap was remarkably prolific. The plants were producing stolons to the length of a meter and sometimes longer.

Mentha rotundifolia, L. Near the South Fork Holston River below Add Wolf, alt. 2,200 ft.

Thoroughly established on a hillside and spreading by means of long stolons.

Mentha viridis, L. Near the Middle Fork of the Holston River, below Marion, alt. 2,100 ft.

Lycopus Virginicus, L. Deep shade along Nick's Creek, alt. 2,600 ft. Open bank along Comer Creek on the Iron Mts., alt. 2,800 ft.

Kœllia mutica (Michx.) Britton. (*Pycnanthemum muticum* Pers.) Along Chestnut Creek, near Gossan, alt. 2,500 ft. Slopes of Farmer Mt. along the New River, alt. 2,200 ft. Along Nick's Creek, alt. 2,300 ft.

Kœllia pycnanthemoides (Leav.) Kuntze. (*Pycnanthemum Tullia*, Benth.) Western slope of the Pinnacle, near Cumberland Gap, alt. 3,000 ft. Slopes of Peak Mt., alt. 2,200 ft. Hills along Chestnut Creek near Gossan, alt. 2,300 ft.

* Mem. Torr. Bot. Club, iii. 12.

Kœllia incana (L.) Kuntze. (*Pycnanthemum incanum* Michx.) Banks of the Middle Fork Holston River at Marion, alt. 2,100 ft.

Kœllia lanceolata (Pursh) Kuntze.* (*Pycnanthemum Virginicum* B. S. P.) Swamps on Peak Mt. (along the railroad), alt. 2,200 ft.

Kœllia Virginiana (L.) Kuntze. (*Pycnanthemum flexuosum* B. S. P.) In a large swamp on Peak Mt., alt. 2,300 ft.

Kœllia verticillata (Michx.) Kuntze. Dry western slope of the Pinnacle, near Cumberland Gap, alt. 2,800 ft. Farmer Mt. on New River, alt. 2,200 ft.

A great extension of the range of this species south and west. Its former range being "S. New York to E. Pennsylvania."†

Kœllia Torreyi (Benth.) Kuntze. (*Pycnanthemum Torreyi*, Benth.) Banks of the New River, alt. 2,200 ft.

This collection extends the range of *P. Torreyi* to Southern Virginia. Heretofore the southern limit was Southern Pennsylvania.

Hedeoma pulegioides (L.) Pers. Along St. Clair's Creek, near the base of the Iron Mts., alt. 2,400 ft.

Clinopodium vulgare, L. (*Calamintha Clinopodium*, Benth.) Southern slope of White Rock Mt., alt. 3,800 ft. Along Nick's Creek, alt. 2,600 ft. About Lynchburg, alt. 500 ft.

Clinopodium Nepeta (L.) Kuntze. (*Calamintha Nepeta*, L.) Rocky fields below Marion, alt. 2,100 ft. Banks of Reed Creek, near Wytheville, alt. 2,000 ft.

Melissa officinalis, L. Near the mouth of Nick's Creek, alt. 2,400 ft. Above Marion, alt. 2,100 ft.

Salvia lyrata, L. Mountains east of Buchanan, alt. 1,100 ft. Vicinity of Marion, alt. 2,100 ft. Falls of the Holston River, alt. 2,050 ft.

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* We are provisionally using the names assigned to this and the preceding species by Dr. Kuntze, but think it most probable that *Virginiana* properly belongs to the lanceolate-leaved plant.

†Man. Bot. N. U. S. (revised.), p. 410.

Monarda Clinopodia, L. On Peak Mt., along Peak Creek, alt. 2,200 ft. At Skull Gap, on the Iron Mts., alt. 3,000 ft. Ledges of Farmer Mt., along the New River, alt. 2,500 ft. On the South Fork Holston River, near St. Clair's Bottom, alt. 2,200 ft. Vicinity of Lynchburg, alt. 500 ft.

Monarda didyma, L. Banks of Beaver Branch, alt. 2,500 ft.

Monarda fistulosa, L. Vicinity of Lynchburg, alt. 500 ft. Hills below Marion, 2,200 ft. Hills about the mouth of Brush Creek, along the New River, alt. 2,200 ft. On Farmer Mt., alt. 2,500 ft. Along Beaver Branch, alt. 2,200 ft.

Vleckia scrophulariæfolia (Willd.) Raf. (*Lophanthus scrophulariæfolius*, Benth.) Thickets along the South Fork of the Holston River, above Add Wolf, alt. 2,200 ft. Along Hog-trough Creek, alt. 2,600 ft.

Nepeta Cataria, L. Along Hog-trough Creek, alt. 2,600 ft. Marion, alt. 2,100 ft.

Glechoma hederacea, L. Along Bear Creek, alt. 2,400 ft. In Hungry Hollow, east of Marion, alt. 2,300 ft.

Meehania cordata (Nutt.) Britton. Rocky ledges along Bear Creek, alt. 2,400 ft. Foot of White Rock Mt., alt. 3,000 ft. In dark ravines at the Falls of the Holston, alt. 2,050 ft. Along Hungry's Mother Creek, alt. 2,200 ft.

Scutellaria lateriflora, L. In the large spring near Wallace Switch, alt. 1,900 ft. Rocky Banks of the Middle Fork of the Holston River, Marion, alt. 2,100 ft.

Scutellaria pilosa, Michx. Banks of Dicky Creek, alt. 2,800 ft.

Scutellaria saxatilis, Riddell. Foot of Pond Mt., alt. 2,600 ft.

Synandra grandiflora, Nutt. Thickets on the northern slope of White Rock Mt., alt. 3,000 ft.

Another species of the Ohio Valley flora which extends over to the eastern slopes of the Alleghanies.

Marrubium vulgare, L. Along Dicky Creek, alt. 2,400 ft. Near Hutton's Branch, alt. 2,400 ft. Below Chilhowie, alt. 1,900 ft.

Stachys aspera, Michx. Near the Summit (southern slope), alt. 5,400 ft. Near Lynchburg, alt. 500 ft.

Stachys cordata, Ridd. River banks about the Falls of the Holston River, alt. 2,050 ft. Woods near Wytheville, alt. 2,000 ft.

Lamium maculatum, L. By a garden at Troutdale, alt., 2,800 ft.

Teucrium Canadense, L. Below Marion on the Middle Fork Holston River, alt. 2,050 ft. Banks of Hog-trough Creek, alt. 2,600 ft.

Leonurus Cardiaca, L. Marion, alt. 2,100 ft.

Isanthus brachiatus (L.) B. S. P. Roadsides below Chilhowie, alt. 1,900 ft. Spurs of the Iron Mts., along Hog-trough Creek, alt. 2,600 ft. Near Add Wolf, alt. 2,200 ft.

Plantago cordata, Lam. Limestone rocks at the Falls of the Holston River, alt. 2,050 ft.

Plantago lanceolata, L. Along Reed Creek, alt. 2,000 ft. Near Marion, alt. 2,100 ft.

Plantago major, L. Along railroad on Peak Mt., alt. 2,200 ft.

Plantago Virginica, L. Marion, alt. 2,100 ft. Along Hutton's Branch, alt., 2,300 ft. Near Lynchburg, alt. 500 ft.

Anychia Canadensis (L.) B. S. P. Dry hillsides about Marion, alt. 2,100 ft. Banks of the New River on Farmer Mt., alt. 2,300 ft. Woods along Beaver Branch, alt. 2,500 ft. Banks along Dickey Creek, alt. 2,600 ft.

Anychia dichotoma, Michx. Dry places near Cumberland Gap, alt. 1,600 ft.

Chenopodium murale, L. Waste places about Marion, alt. 2,100 ft. Streets of Wytheville, alt. 2,200 ft.

Phytolacca decandra, L. Along Staley Creek near Marion, alt. 2,200 ft. Falls of the Holston River, alt. 2,050 ft. Near Lynchburg, alt. 500 ft.

Polygonum aviculare, L. Near St. Clair's Bottom on the South Fork Holston River, alt. 2,200 ft.

Polygonum Convolvulus, L. Rocky places on the Southern slope of White Rock Mt., alt. 3,000 ft. Waste places near Cumberland Gap, alt. 1,600 ft.

Polygonum erectum, L. Open places near Cumberland Gap, alt. 1,700 ft. About St. Clair's Bottom on the South Fork Holston River, alt. 2,200 ft.

Polygonum Hydropiper, L. Marion, alt. 2,100 ft. Along Reed Creek, alt. 2,000 ft. On the South Fork Holston River, alt. 2,200 ft.

Polygonum littorale, Link. Dry barrens about Cumberland Gap, alt. 1,600 ft.

Polygonum orientale, L. Near the South Fork Holston River, alt. 2,200 ft.

Polygonum Pennsylvanicum, L. Near St. Clair's Bottom, alt. 2,200 ft. About Marion, alt. 2,100 ft.

Polygonum Persicaria, L. Near the summit of White Top Mt., alt. 5,300 ft. About St. Clair's Bottom, alt. 2,200 ft. Near Cumberland Gap, alt. 1,600 ft.

The specimens collected on White Top Mt. are affected, evidently by the high altitude, in a peculiar way. The stem is branched only from the root, being strictly simple beyond this. The leaves are narrower and the flowers reduced in size and of a deeper pink color.

Polygonum punctatum, Ell. Near Marion, alt. 2,100 ft.

Polygonum punctatum, Ell., var. *leptostachyum* (Meisn.) Small. Dry barrens about Cumberland Gap, alt. 1,600 ft.

Polygonum sagittatum, L. Slopes of the Iron Mts., along Comer Creek, alt. 3,000 ft.

Fagopyrum Fagopyrum (L.) Karst. (*Fagopyrum esculentum*, Mœnch). Northern slope of Pine Mt., alt. 3,300 ft. Escaped by the side of an illicit still.

Rumex Acetosella, L. Hillsides about Marion, alt. 2,300 ft. Summit of White Top Mt., alt. 5,600 ft. Vicinity of Lynchburg, alt. 500 ft.

It has been noticed that the above species does not fruit freely in the Northern and Eastern States. In all the Virginian localities noted *Rumex Acetosella* was collected in fruit, and at Marion and on White Top there was no question as to its fruiting very abundantly. It has also been collected in fruit on the mountains of North Carolina, and in the Catskill Mts., New York.

Rumex crispus, L. Along Beaver Branch, alt. 2,200 ft. Above Bristol, alt. 1,800 ft.

Rumex obtusifolius, L. On Staley Knob near Marion, alt. 2,400 ft.

Asarum arifolium, Michx. Woods north of Bristol, alt. 1,800 ft. Vicinity of Lynchburg, alt. 500 ft.

Asarum Canadense, L. East Fork Walker Creek, alt. 2,300 ft. Hungry Hollow, alt. 2,300 ft.

ASARUM GRANDIFLORUM (Michx.) Small. (*Homotropa macranthum*, Shuttl. mss. in dist. Rugel, 1841. *Asarum Virginicum*, L., var. *grandiflorum*, Michx. ex Duchartre in D.C. Prodr. xv. 426 (1864)).

It seems strange that this conspicuous plant should have been overlooked for so many years and not received any recognition in our text-books. It has been practically unnoticed by botanists since Rugel's collection of 1841.* On specimens of that collection Shuttleworth based his *Homotropa macranthum*. This was not published but distributed as a manuscript name.

When Duchartre monographed the genus for DeCandolle's Prodromus he took up the name *grandiflorum*, apparently from a manuscript name left by Michaux, as he credits the variety to him. However, he has made a mistake in referring to the name as being published by Michaux in his Fl. Bor. Am. i. 279.

After meeting with the plant during the last two seasons and studying it in the field, we reach the same conclusion as Shuttleworth did, that is, that it is not a variety of *A. Virginicum*, but a good and distinct species. As there is no complete description published, the following is appended.

Perennial, stout, arising from a more or less branched rhizome, glabrous; leaves varying from broadly-ovate-cordate to orbicular-cordate, 5–9 cm. long, 4–8 cm. broad, obtuse or acutish, long-petioled, mottled or simply green, paler beneath; flowers solitary, large, 1.5–4 cm. long, tubular-campanulate, limb not contracted but divided into three large, unequal spreading lobes, which are mottled with violet on the inside; peduncle 2–2.5 cm. long; anthers equally four-ribbed, seed oblique-ovoid, acute, 3.5 mm. long, smooth.

North Carolina; Broad River (Rugel), Hot Springs (Newberry), Wilson's Creek, Caldwell county (Small and Heller). Vir-

* Mem. Torr. Club, iii. 11.

ginia ; Bedford county (Curtiss), along Laurel Creek at Broadford, Smyth County (Miss Vail).

Asarum Virginicum, L. Deep ravine by the Falls of the Middle Fork of the Holston River, alt. 2,050 ft. On Staley Knob, near Marion, alt. 2,300 ft.

Aristolochia Serpentaria, L. Southern slope of Pond Mt. east of Marion, alt 2,600 ft. Near Lynchburg, alt. 500 ft.

Aristolochia Sipho, L'Her. Northeastern slope of White Top Mt., alt. 3,500 ft. Although collected at a single locality, *Aristolochia Sipho* was abundant everywhere. *A. tomentosa*, Sims, was sought for throughout the journey but without success.

Sassafras Sassafras (L.) Karst. (*Sassafras officinalis*, Nees.) Summit of Pond Mt. east of Marion, alt. 3,400 ft.

Lindera Benzoin (L.) Meisn. Rocky banks of the Middle Fork Holston River, at Marion, alt. 2,100 ft. Near Lynchburg, alt. 500 ft. Sandy shore of the South Fork Holston River, alt. 2,200 ft.

Dirca palustris, L. Deep ravine at the Falls of the Holston River, alt. 2,050 ft.

Pyrularia pubera, Michx. Staley Knob east of Marion, alt. 2,300 ft. Shaded banks of Nick's Creek, alt. 2,500 ft. Slopes of Pond Mt., east of Marion, alt. 3,000 ft. Cliffs at the mouth of Hungry's Mother Creek, alt. 2,075 ft. Northeastern slope of White Top Mt., alt. 3,500 ft.

This interesting species was remarkably plentiful through the mountains, but it did not seem to fruit freely. A number of the localities were visited late in the season for the sake of obtaining fruit, but only one shrub was found bearing the peculiar oily drupes.

Euphorbia corollata, L. Rocky banks along Peak Creek on Peak Mt., alt. 2,200 ft. Ledges of Slemp's Creek, alt. 2,800 ft. Shannon Gap, alt. 3,000 ft.

Euphorbia corollata, L., var. *paniculata* (Ell.) Boiss. Near Lynchburg, alt. 500 ft.

Euphorbia hypericifolia, L. Along the road on Peak Mt., alt. 2,200 ft.

Euphorbia Lathyris, L. Banks of the South Fork Holston River below Add Wolf, alt. 2,100 ft. Banks of St. Clair's Creek near the base of the Iron Mts., alt. 2,600 ft.

Euphorbia maculata, L. Along the road across Peak Mt., alt. 2,200 ft.

Acalypha Virginica, L., var, *gracilens* (A. Gray) Muell. Dry barrens about Cumberland Gap, alt. 1,600 ft.

Ulmus racemosa, Thomas? On the South Fork Holston River, east of Add Wolf, alt. 2,300 ft.

As the flowers and fruit of this elm could not be secured, certain determination is impossible; however, if the character of pubescent buds, which is ascribed to *U. racemosa* holds good, the specimens are correctly referred to that species.

Celtis occidentalis, L. Banks of the Middle Fork Holston River below Marion, alt. 2,100 ft.

Ioxylon pomiferum, Raf. (*Maclura aurantiaca*, Nutt.) Escaped near Marion, alt. 2,200 ft.

Morus rubra, L. Valley of the North Fork Holston River, alt. 2,000 ft. On the island near Marion, alt. 2,100 ft.

Urtica gracilis, Ait. Below Chilhowie, alt. 2,000 ft.

Laportea Canadensis (L.) Gaudich. Deep woods along Nick's Creek, alt. 2,500 ft. Slopes of White Top Mt., alt. 4,000 ft.

Bœhmeria cylindrica (L.) Willd. Vicinity of Marion, alt. 2,100 ft. Wallace Switch, alt. 1,900 ft. In a large limestone spring.

Platanus occidentalis, L. Limestone bluffs opposite Marion, alt. 2,100 ft. Along Hungry's Mother Creek, alt. 2,300 ft.

Hicoria glabra (Mill.) Britton. Dry western slope of the Pinnacle near Cumberland Gap, alt. 3,000 ft.

Hicoria minima (Marsh.) Britton. Limestone bluffs opposite Marion, alt. 2,100 ft.

Hicoria ovata (Mill.) Britton. Limestone bluffs of the Middle Fork Holston River opposite Marion, alt. 2,200 ft.

Hicoria alba (L.) Britton. Limestone bluffs of the Middle Fork Holston River near Marion, alt. 2,200 ft.

Juglans cinerea, L. Bluffs opposite Marion, alt. 2,100 ft. Valley of the South Fork Holston River, alt. 2,000 ft.

Juglans nigra, L. Along Hog-trough Creek, alt. 2,600 ft.

Betula lutea, Michx. f. Slopes and summit of White Top Mt., alt, 4,600–5,678 ft. Brushy Mt., alt. 2,800 ft.

There is a remarkably fine growth of this birch on the damp slopes of White Top. The younger trees all seem to have a silvery-gray bark, which on the older ones turns to the characteristic yellow. At an elevation of about 5,000 ft. on the eastern slope of the mountain a splendid tree was observed and the trunk measured. For the distance of about twelve feet from the ground the trunk is quite cylindrical and unbranched. Three feet from the base it measured twenty-two feet and ten inches in circumference.

Alnus serrulata, Willd. Rocky banks of Peak Creek, on Peak Mt., alt. 2,200 ft. Near Marion, alt. 2,100 ft. Sandy shores of the South Fork Holston River east of Add Wolf, alt. 2,300 ft.

The specimens collected at the latter locality are referred to the above species with some hesitation. The leaves are more sharply and prominently toothed, and have more pubescence on the under surface than is generally found in *A. serrulata*. There is a specimen of the same form preserved in the Columbia College herbarium, collected in Kentucky by Short.

Carpinus Virginiana (Marsh.) Sudw. Woods near Marion, alt. 2,200 ft. Along Chestnut Creek near Gossan, alt. 2,300 ft. Slopes of Walker Mt., alt. 2,800 ft.

Corylus rostrata, Ait. Rocky mountain slopes along Nick's Creek, alt. 2,600 ft. Ledges of Farmer Mt., on the New River, alt. 2,300 ft.

Quercus alba, L. Southern slope of White Rock Mt., alt. 4,000 ft. Common throughout the valleys.

Quercus coccinea, Wang. Dry sandy barrens below Chilhowie, alt. 2,000 ft. High cliffs of the Iron Mts., at Skull Gap, alt. 3,000 ft.

Quercus cuneata, Wang. North of Bristol, alt. 1,800 ft. Barrens below Chilhowie, alt. 2,000 ft.

Quercus minor (Marsh.) Sarg. Barrens below Chilhowie, alt. 2,000 ft.

Quercus Muhlenbergii, Engelm. Limestone bluffs of the Holston River, opposite Marion, alt. 2,100 ft.

Quercus Prinus, L. Dry western slope of the Pinnacle near Cumberland Gap, alt. 2,800 ft.

Quercus rubra, L. Bluffs along Reed Creek, alt. 2,000 ft. Banks of the Middle Fork Holston River at Chilhowie, alt. 2,000 ft. Near the summit of White Top Mt., alt. 5,500 ft. On the Iron Mts., along Dickey Creek, alt. 2,800 ft.

Quercus tinctoria, Bart. Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft. Hills about Cumberland Gap, alt. 1,600 ft. Vicinity of Lynchburg, alt. 500 ft.

Castanea dentata (Marsh.) Sudw. Ledges of Farmer Mt., on the New River, alt. 2,200 ft.

Castanea pumila, Mill. Slopes of Walker Mt., alt. 2,000–3,000 ft. Base of White Rock Mt., alt. 2,500 ft. Near Abingdon, alt. 1,900 ft. Along Peak Creek, on Peak Mt., alt. 2,200 ft. Vicinity of Lynchburg, alt. 500 ft.

Fagus atro-punicea (Marsh.) Sudw. Upper slopes and summit of White Top Mt., alt. 5,000–5,600 ft. Rocky places near the Falls of the Holston River, alt. 2,050 ft.

Salix candida, Willd. Summit of White Rock Mt., alt. 4,400 ft. A remarkable southern extension of the range of this northern willow.

Salix humilis, Marsh. Peak Mt., along Peak Creek, alt. 2,200 ft.

Salix nigra, Marsh. River bank at Marion, alt. 2,100 ft.

Salix sericea, Marsh. Banks of White Top Creek, alt. 2,600 ft.

Populus balsamifera, L. var. *candicans* (Ait.). A. Gray. Base of Round Top Mt., west of Seven Mile Ford, alt. 2,600 ft. Along Hutton's Branch, alt. 2,300 ft.

Udora Canadensis (Michx.) Nutt. (*Elodea Canadensis*, Michx.) In a large limestone spring above Wallace Switch, alt. 1,900 ft.

Liparis liliifolia (L.) Rich. Woods along Staley Creek, alt. 2,300 ft.

Liparis Læselii (L.) Rich. Damp woods along Beaver Branch, alt. 2,200 ft.

Aplectrum spicatum (Walt.) B. S. P. Deep woods along Nick's Creek, alt. 2,500 ft.

Corallorhiza multiflora, Nutt. Slopes of Pine Glade Mt., along Nick's Creek, alt. 2,600 ft.

Listera convallarioides (Sw.) Nutt. Damp woods along Comer Creek, alt. 2,600 ft. Slopes of Pine Glade Mt., along Nick's Creek, alt. 2,600 ft. Slopes of White Top Mt., alt. 5,000 ft.

Gyrostachys latifolia (Torr.) Kuntze. Sandy river bank at Marion, alt. 2,100 ft. Along Hutton's Branch, alt. 2,500 ft.

Peramium pubescens (Willd.) C. C. Curtiss. (*Goodyera pubescens*, R. Br.) Iron Mts. near Skull Gap, alt. 2,800 ft. Woods along Nick's Creek, alt. 2,600 ft.

Peramium repens (L.) Salisb. (*Goodyera repens*, R. Br.) Slopes of Pine Glade Mt., near Nick's Creek, alt. 2,600 ft. Brushy Mt., alt. 3,300 ft.

Pogonia verticillata (Willd.) Nutt. Northeastern slope of White Top Mt., alt. 3,000 ft. Pine Mt., alt. 4,000 ft.

Orchis spectabilis, L. Northern slope of White Top Mt., alt. 4,200 ft. Knobs east of Marion, alt. 2,200 ft.

Habenaria orbiculata (Pursh) Torr. Slopes of White Top Mt., alt. 3,500 ft. Western slope of Mt. Rogers, alt. 4,500 ft.

Habenaria bracteata (Willd.) R. Br. Deep woods at the Falls of Holston River, alt. 2,050 ft. Damp woods along Nick's Creek, alt. 2,500 ft.

Habenaria psycodes (L.) A. Gray. Northern slope of White Top Mt., alt. 3,000–4,800 ft. Western slope of Mt. Rogers, alt. 4,000–5,000 ft.

Habenaria tridentata (Willd.) Hook. Along Staley Creek, east of Marion, alt. 2,200 ft.

Cypripedium acaule, Ait. Summit of Pine Mt., alt. 4,900 ft. Slopes of White Top Mt., alt. 4,800 ft. Pond Mt., east of Marion, alt. 3,000 ft. Along Nick's Creek, alt. 2,600.

Cypripedium hirsutum, Mill. (*Cypripedium pubescens*, Willd.) Northern slopes of White Top Mt., alt. 3,000 ft. Brushy Mt., near the headwaters of Nick's Creek, alt. 2,900 ft. Slope of Kate's Mt., W. Va., alt. 3,000 ft.

Cypripedium parviflorum, Salisb. Brushy Mt., near headwaters of Staley Creek, alt. 2,900 ft. Slopes of Pond Mt., east of Marion, alt. 2,800 ft. Slopes of the Iron Mt., at Skull Gap, alt. 3,000 ft.

Aletris farinosa, L. At Shannon Gap on Walker Mt., alt. 3,000 ft. Along Slemp's Creek, alt. 2,800 ft. Southern slope of Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft.

Iris cristata, Ait. Limestone bluffs of the Middle Fork Holston River, about Marion, alt. 2,100 ft. Shady banks on the "Knobs" west of the Blue Ridge, alt. 2,300 ft.

Sisyrinchium Bermudiana, L. On Walker Mt. near Chatham Hill Gap, alt. 3,000 ft. Slopes of Pond Mt., alt. 2,600 ft. Fields near Bear Creek, alt. 2,400 ft. Valley between White Top Mt. and the Iron Mts., alt. 2,700 ft. Along Nick's Creek, alt. 2,500 ft.

Hypoxys erecta, L. Walker Mt., alt. 3,000 ft. Southern slope of White Rock Mt., alt. 4,000 ft.

Dioscorea villosa, L. Slopes of Walker Mt., below Chatham Hill Gap, alt. 2,300–2,600 ft.

Smilax rotundifolia, L. River bank at Marion, alt. 2,100 ft.

Smilax rotundifolia, var. *crenulata*, Small and Heller. Banks of the Middle Fork of the Holston River, Marion, alt. 2,100 ft.

Smilax glauca, Walt. Peak Creek, on Peak Mt., alt. 2,200 ft. Bristol, alt. 1,900 ft. River banks, Marion, alt. 2,100 ft.

Smilax herbacea, L. Peak Creek, on Peak Mt., alt 2,200 ft.

Smilax cirrhata, S. Watson. Riverside Marion, alt. 2,100 ft.

Smilax hispida, Muhl. Hills east of Marion, alt. 2,300 ft. Banks of the Holston, Marion, alt. 2,100 ft. Bristol, alt. 1,900 ft.

Smilax Pseudo-China, L. Reed Creek, at base of Lower Rocks alt. 2,000 ft. Wallace Switch, alt. 1,900 ft.

Smilax.

A slender vine abundant on the slopes of the Iron Mountains,

at 3,000–4,000 feet altitude, with very thin, large ovate or ovate-lanceolate, acuminate 5–nerved leaves, ciliolate–spinulose on the margins and nerves; petioles short, clasping; stem exactly square, striate, the angles abundantly armed with staight triangular-lanceolate, flat prickles. Flowers and fruit not seen.

Asparagus officinalis, L. Reed Creek, alt. 2,000 ft.

Polygonatum biflorum (Walt.) Ell. Mouth of Hungry's Mother Creek and river banks at Marion, alt. 2,100 ft. Nick's Creek, alt. 2,400 ft.

Varying from the slender 30–40 cm. high, narrow acute leaved form to the stout, robust over 2 m. high forma *giganteum* with ovate, 13 cm. long and 9 cm. wide, obtuse leaves. The latter form was noted with stout and large old rootstocks, whereas the rootstock of the former were short and slender.

Streptopus roseus (Michx.) Pers. Spruce Swamp on White Top Mt., alt. 5,000 ft.

Unifolium racemosum (L.) Britton. Woods near Marion, alt. 2,100 ft.

Unifolium stellatum (L.) Greene. Falls of the Middle Fork of the Holston, alt. 2,050 ft.

The collection of this species at the above locality extends its geographical range to about the southern limit of the "manual range." Hitherto it has been said to occur from New Jersey westward and northward.

Unifolium Canadense (Desf.) Greene. Slopes of White Top Mt., alt. 2,600–5,000 ft.

Allium Canadense, L. Marion, river banks, alt. 2,100 ft.

Allium tricoccum, Ait. Slopes of White Top Mt. and Mt. Rogers, alt. 4,000 ft.

Convallaria majalis, L. Pond Mt., alt. 2,900–3,200 ft. Skull Gap, Iron Mt., alt. 3,000 ft. Slopes of White Top Mt., alt. 3,000 ft. Collected at Skull Gap in fruit on June 25th.

Camassia Fraseri, Torr. Meadow near the cliff on Hungry's Mother Creek, alt. 2,300 ft.

Lilium Canadense, L. Lynchburg, along the banks of the James River, alt. 500 ft. Peak Creek, on Peak Mt., alt. 2,200 ft. White Rock Mt., alt. 4,400 ft.

When first seen these lilies were taken for *L. Grayi*, but careful comparison with well authenticated specimens of that latter species prove them to be in all probability *L. Canadense*. The flower has the shape and appearance of that of *L. Canadense* and the dark red color of *L. Grayi*. It may possibly be a mountain variety of *L. Canadense*.*

Lilium Carolinianum, Michx. Fl. Bor. Am. i. 197. (*L. superbum*, L., var. *Carolinianum*, Chapm. Fl. S. States, 484.)

The above species has had a curious and complicated history, and until the plant can be studied more thoroughly in the field, especially in the districts south and east of the Southern Alleghanies, no attempt will be made to give it at length. However, it may be said here that the later botanists were for some unaccountable reason misled, and either erroneously made the plant a variety of *L. superbum* or ignored it wholly. It is hardly as closely related to that species as *L. Canadense* is. One reason for its general obscurity may be the very poor descriptions of it that have been published; for example, Dr. Watson's in his Revision of the North American Liliaceæ, "Low: flowers few (1 to 3)." As will be shown elsewhere, the plant is not at all rare in the Southern States, but for the convenience of persons interested in the flora of that district a description is here given, which will also serve to bring out the distinctions between it and related species.

Perennial, glabrous and more or less glaucous throughout; stem erect, simple, 3–9 dm. tall, slightly mottled; leaves oblanceolate or obovate, 3–11 cm. long, mostly obtuse, sometimes acute, rather fleshy, 3-nerved, entire, often slightly crisped, in whorls of 3 to 7 or on small plants alternate and scattered; the one to three, flowers (generally one) nodding, orange-red, the tips of the segments darker, mottled with dark purple; the divisions of the perianth lanceolate, strongly recurved in the lower half, more or less straight above, glossy; fruit obovoid, about 3 cm. long.

* It may be well to note here that the specimens collected on the Peaks of Otter in 1890 (Mem. Torr. Bot. Club, ii. 50) are this same form of *L. Canadense*, and though *L. Grayi* is reported from that mountain, we did not find it there. A. M. V.

Grows plentifully on the dry and open slopes of the Blue Ridge, and collected at the following localities: Iron Mountains from Skull Gap to the source of Dickey Creek, altitude 2,000–3,400 feet. Along Nick's Creek on the slopes of Pine Glade Mountain, altitude 2,500 feet. Slopes of White Top Mountain, altitude 2,700–5,000 feet. One of the characters which, however, can only be noticed in the field, is its delightful odor which often leads one to detect it before one's attention is attracted by its brilliant colors.

Lilium superbum, L. Slopes of White Top Mt., alt. 3,000 ft.

Lilium Philadelphicum, L. Lyon Gap, Walker Mt., alt. 2,800 ft. Skull Gap, Iron Mt., alt. 3,000 ft.

Chamælirium luteum (L.) A. Gray. Pond Mt., and Brushy Mt., alt. 2,800–3,000 ft.

Erythronium Americanum, Ker. Summit of White Top Mt., alt. 4,500–5,678 ft. Staley Creak near Marion, alt. 2,300 ft.

Uvularia perfoliata, L. Falls of the Middle Fork of the Holston, alt. 2,050 ft. Nick's Creek, alt. 2,300 ft.

Uvularia puberula, Michx. Skull Gap, Iron Mts., alt. 3,000 ft. Pond Mt., alt. 2,600–3,000 ft. Hills near Marion, alt. 2,500 ft. Brushy Mt., alt. 3,400. Kate's Mt., W. Va., alt. 3,300 ft.

Disporum lanuginosum (Michx.) Britton. Walker Creek at the base of Walker Mt., alt. 2,300 ft. Pond Mt., alt. 3,000 ft.

Clintonia borealis (Ait.) Raf. Summit and slopes of White Top Mt., alt. 4,800–5,678 ft. Pine Mt. alt. 3,000–4,900 ft.

Clintonia umbellata, Torr. Staley Creek near Marion, alt. 2,300 ft. Walker Creek, alt. 2,200 ft. Nick's Creek at the base of Pine Glade Mt., alt. 2,500 ft.

Some of the plants collected were noteworthy on account of the purple spotted and streaked corollas.

Medeola Virginica, L. Nick's Creek, at the base of Pine Glade Mt., alt. 2,600 ft.

Trillium erectum, L. Spruce swamps on White Top Mt., alt. 5,000 ft. Staley Creek near Marion, alt. 2,300 ft.

In the last named locality the plants collected had creamy white flowers. The same form was also noticed elsewhere.

Trillium erythrocarpum, Michx. Summit White Top Mt., alt. 5,678 ft. Nick's Creek, alt. 2,300 ft.

Melanthium Virginicum, L. Peak Creek, on Peak Mt., alt. 2,000 ft.

Veratrum viride, Ait. Pine Mt., alt. 3,000 ft.

Chrosperma muscætoxicum (Walt.) Kuntze. Summit of White Rock Mt., alt. 4,400 ft.

Stenanthium angustifolium, Michx. Peak Creek, on Peak Mt., alt. 2,200 ft.

Tradescantia Virginica, L. (*T. montana*, Shuttl. ined.) Slopes of White Rock, alt. 3,800 ft.

Typha latifolia, L. Peak Creek, on Peak Mt., alt. 2,200 ft.

Sparganium eurycarpum, Engelm. The Island, Marion, alt. 2,100 ft.

Arisæma triphyllum (L.) Torr. Pine Mt., alt. 4,600 ft. Nick's Creek and Hungry's Mother Creek, near Marion, alt. 2,300 ft. Hutton's branch, near Marion, alt. 2,300 ft.

In the last-named locality the plants grew on a hillside in dense woods and were over 1½ m., growing from nearly 6 cm. in diameter, stout rootstocks, the purplish flowers nearly 18 cm. long.

Acorus Calamus, L. Sugar Creek, near Marion, alt. 2,300 ft.

Sagittaria latifolia, Willd. var. *pubescens* (Muhl.) J. G. Smith. McHenry's Creek, base of Walker Mt., alt. 2,300 ft.

Potamogeton foliosus, Raf. (*P. pauciflorus*, Pursh.) Island Swamp, Marion, alt. 2,100 ft.

Juncus acuminatus, Michx. Sandy places along the New River at the mouth of Brush Creek, alt. 2,100 ft.

Juncus Canadensis, J. Gay. Swamps on the Iron Mts., alt. 3,000 ft. Banks of Dickey Creek, alt. 2,500 ft.

Juncus effusus, L. Sandy banks of the New River at the mouth of Brush Creek, alt. 2,100 ft. Island near Marion, alt. 2,100 ft.

Juncus marginatus, Rostk. Shores of the island at Marion, alt. 2,100 ft. Sandy shores of the New River near Brush Creek, alt. 2,100 ft.

Juncus tenuis, Willd. Wet places at the mouth of Brush Creek, alt. 2,100 ft. Along Hutton's Branch, alt. 2,500 ft.

Juncus tenuis, Willd. var. *secundus* (Poir.) Engelm. Sandy hillsides along the New River, alt. 2,150 ft.

Juncoides campestre (L.) Kuntze. (*Luzula campestris* DC.) Summit of Pond Mt., east of Marion, alt. 3,400 ft. Summit of White Top Mt., alt. 5,678 ft. Banks of Comer Creek near summit of Iron Mts., alt. 3,000 ft.

Juncoides pilosum (L.) Kuntze. (*Luzula pilosa*, Willd.) Staley's Knob, near Marion, alt. 2,300 ft. Eastern slope of White Top Mt., alt. 5,000 ft. Southern slope of White Rock Mt., alt. 4,000 ft. Iron Mts., near the source of Comer Creek, alt. 3,000 ft.

Cyperus filiculmis, Vahl. Sandy shore of the New River, alt. 2,100 ft. Near Lynchburg, alt. 500 ft.

Eleocharis ovata (Roth.) R. Br. Near the mouth of Brush Creek, alt. 2,100 ft.

Eleocharis palustris (L.) R. Br., var. *glaucescens* (Willd.) A. Gray. Banks of Staley Creek, near Marion, alt. 2,100 ft.

Eleocharis tenuis (Willd.) Schult. Wet places along East Fork Walker Creek, alt. 2,300 ft.

Scirpus atrovireus, Muhl. Swamp on Peak Mt., alt. 2,200 ft. Recorded in the "Revised Manual" as growing only as far south as New England. The plant, however, is very common as far south as Maryland, and abundant in the above locality.

Scirpus cyperinus (L.) Kunth. Swamps on Peak Mt., alt. 2,200 ft.

Scirpus lacustris, L. Island near Marion, alt. 2,100 ft. About a limestone spring below Saltville, alt. 2,200 ft.

Scirpus lineatus, Michx. Above Bristol, alt. 1,800 ft. Meadow along Sugar Creek, alt. 2,300 ft.

Scirpus polyphyllus, Vahl. Near the South Fork Holston River below Add Wolf, alt. 2,200 ft. Along Peak Creek, on Peak Mt., alt. 2,200 ft.

Scirpus sylvaticus, L. Swamp near the mouth of Brush Creek, alt. 2,100 ft. Near the South Fork Holston River below Add Wolf, alt. 2,200 ft.

Rynchospora glomerata (L.) Vahl. Wet places along Dickey Creek, alt. 2,900 ft.

Scleria triglomerata, Michx. Dry sandy slope of the Pinnacle near Cumberland Gap, alt. 3,000 ft.

Carex æstivalis, M. A. Curtis. Western slope of Mt. Rogers, alt. 4,700 ft. Summit of White Rock Mt., alt. 4,400 ft.

Carex canescens var. *brunnescens* (Pers.) B. S. P. Rocks on the summit of White Top Mt., alt. 5,678 ft. Summit of Pine Mt., alt. 4,900 ft.

Carex Careyana, Torr.? Woods along Beaver Branch, alt. 2,200 ft.

Carex cephalophora, Muhl. Northern slope of Brushy Mt., alt. 3,000 ft. On Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. Southern slope of White Rock Mt., alt. 4,000 ft.

Carex communis, Bailey. Along Hungry's Mother Creek, alt. 2,100 ft. Rocks near the Falls of the Holston River, alt. 2,050 ft. Mountains east of Buchanan, alt. 1,100 ft. Cliffs along Dickey Creek, alt. 2,700 ft. Slopes and summit of Pine Mt., alt. 3,000–4,900 ft. Woods along Nick's Creek, alt. 2,500 ft. Rocks near the summit of White Top Mt., alt. 5,500 ft. Slopes and summit of Mt. Rogers, alt. 4,000–5,719 ft.

Carex crinita, Lam. Southern slope of Pond Mt., alt. 3,000 ft. Along Hutton's Branch, alt. 2,300 ft.

Carex cristata, Schw. Along Bear Creek, alt. 2,300 ft. Near Marion, alt. 2,100 ft.

Carex debilis, Michx. Pond Mt., east of Marion, alt. 3,000 ft. Western slope of Mt. Rogers, alt. 5,000 ft. Summit of White Rock Mt., alt. 4,400 ft.

Carex digitalis, Willd. Staley Knob east of Marion, alt. 2,400 ft. Gorge in Little Brushy Mt., near Broad Ford, alt. 2,200 ft. Limestone bluffs of the Middle Fork Holston River at Marion, alt 2,100 ft. Walker Mt. at Chatham Hill Gap, alt. 3,000 ft.

Carex echinata, Murray. Slopes of Brushy Mt., alt. 2,600 ft.

Carex folliculata. L. Swamp on Peak Mt., alt. 2,200 ft.

Carex Frasceri, Andrews. Slopes of Pine Glade Mt., along Nick's Creek, alt. 2,600 ft. Banks of Beaver Branch, alt. 2,100 ft. Iron Mt., near the source of Comer Creek, alt. 3,000 ft.

Carex gracillima Schw. Chatham Hill Gap on Walker Mt., alt. 3,000 ft.

Carex granularis, Muhl. River banks at Marion, alt. 2,100 ft. Meadows along Hutton's Branch, alt. 2,400 ft.

Carex grisea, Wahl. Sandy banks of the Middle Fork Holston River near Marion, alt. 2,100 ft. Hillside near Mollie's Knob, alt. 2,300 ft. Below the Falls of the Holston River, alt. 2,050 ft.

Carex Hitchcockiana, Dewey. Hillside near the base of Mollie's Knob, alt. 2,300 ft.

Carex intumescens, Rudge. Swamps on Peak Mt., along Peak Creek, alt. 2,200 ft.

Carex laxiculmis, Schwein. Summit of White Top Mt., alt. 5,678 ft.

Carex laxiflora, Lam. Southern slope of White Rock Mt., alt. 4,000 ft. Along the East Fork Walker Creek, alt. 2,300 ft. Banks of Nick's Creek, alt. 2,600 ft. Summit of Mt. Rogers, alt. 5,719 ft. Near Marion, alt. 2,100 ft.

Carex laxiflora, Lam., var. *plantaginea* (Schk.) Boott. East Fork Walker Creek, alt. 2,300 ft. Near the base of Mollie's Knob, alt. 2,200 ft. Along Nick's Creek, alt. 2,500 ft.

Carex laxiflora, Lam., var. *latifolia*, Boott. Cliff of Farmer Mt., along the New River, alt. 2,300 ft. Ledges along Bear Creek, alt. 2,300 ft. Banks of the Middle Fork Holston River, below Marion, alt. 2,100 ft. Along Staley Creek, near Marion, alt. 2,200 ft.

Carex lupulina, Muhl. Swamps about the island near Marion, alt. 2,100 ft.

Carex lurida, Wahl. Along Peak Creek, on Peak Mt., alt. 2,200 ft. Swamp on Walker Mt., about Chatham Hill Gap, alt. 3,000 ft. Island near Marion, alt. 2,100 ft. Woods about the Falls of the Holston River, alt. 2,050 ft.

Carex Pennsylvanica, Lam. Limestone bluffs of the Middle Fork Holston River, near Marion, alt. 2,100 ft. Cliffs above the East Fork Walker Creek, alt. 2,300 ft. Banks of Hungry's Mother Creek, alt. 2,200 ft.

Carex plantaginea, Lam. Rocks near the Falls of the Holston River, alt. 2,050 ft.

Carex polytrichoides, Muhl. Along Staley Creek, near Marion, alt. 2,200 ft.

Carex prasina, Wahl. Bed of Nick's Creek, alt. 2,600 ft. Along a stream by the base of Mollie's Knob, alt. 2,400 ft.

Carex rosea, Schk. Woods in Hungry Hollow, alt. 2,300 ft. Hillsides along Bear Creek, alt. 2,400 ft. Along Nick's Creek, alt. 2,500 ft.

Carex rosea, Schk., var. *radiata*, Dewey. On Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. Summit of Pine Mt., alt. 4,900 ft. Western slope of Mt. Rogers, alt. 5,000 ft. Along Beaver Branch, alt. 2,200 ft. Southern slope of White Rock Mt., alt. 4,000 ft. McGrady's Greek, near the base of White Rock Mt., alt. 2,500 ft.

Carex scabrata, Schw. In a stream in the valley between White Top Mt. and the Iron Mts., alt. 2,800 ft. Bed of Nick's Creek, alt. 2,600 ft.

Carex scoparia, Schk. Woods along Beaver Branch, alt. 2,100 ft. On the island near Marion, alt. 2,100 ft. Cliffs of Farmer Mt., along the New River, alt. 2,200 ft.

Carex sparganioides, Muhl. River bank opposite Marion, alt. 2,100 ft.

Carex stenolepis, Torr. Shore of the island near Marion, alt. 2,100 ft.

Carex s'ipata, Muhl. Northern slope of White Top Mt., alt. 4,600 ft,

Carex torta, Boott. Banks of Dickey Creek, alt. 2,600 ft.

Carex tribuloides, Wahl. Along Hungry's Mother Creek, alt. 2,200 ft.

Carex triceps, Michx. Banks of Bear Creek, alt. 2,500 ft. Slopes of Round Top Mt., west of Seven Mile Ford, alt. 2,600 ft. Walker Mt., near Chatham Hill Gap, alt. 3,000 ft. About Marion, alt. 2,100 ft.

Carex vulpinoidea, Michx. Slopes of Round Top Mt., west of Seven Mile Ford, alt. 2,500 ft. Island near Marion, alt. 2,100 ft.

Carex virescens, Muhl. Cliffs along Dickey Creek, alt. 2,800 ft. Ledges of Farmer Mt., along the New River, alt. 2,300 ft.

Paspalum setaceum, Michx. New River at the mouth of Brush Creek, alt., 2,200 ft.

Panicum ciliatum, Ell. Lynchburg, alt. 500 ft.

Panicum clandestinum, L. Peak Creek, on Peak Mt., alt. 2,200 ft.

Panicum commutatum, Schultes. Dickey Creek, Iron Mt., alt. 2,600 ft. Falls of the Holston below Marion, alt. 2,050 ft.

Panicum Crus-galli, L. Near Marion, alt. 2,100 ft.

Panicum depauperatum, Muhl. Base of Walker Mt., alt. 2,400 ft. Slopes and summit of Pond Mt., alt. 2,500–3,000 ft. In gorge near Broadford, alt. 3,000 ft.

Panicum dichotomum, L. Pinnacle, alt. 3,000 ft.

Panicum laxiflorum, Lam. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. New River at mouth of Brush Creek, alt. 2,200 ft. Middle Fork of the Holston at Marion, alt. 2,100 ft. Hitherto not known north of North Carolina.

Panicum microcarpon, Muhl. Peak Creek, on Peak Mt., alt. 2,200 ft.

Panicum nitidum, Lam.? Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Middle Fork Holston River, alt. 2,100 ft. Rye Valley, alt. 2,500 ft. Bear Creek, alt. 2,200 ft.

Panicum ovale, Ell. Chatham Hill Gap, Walker Mt., alt. 3,000 ft.

Panicum pubescens, Lam., var. *barbulatum* (Michx.) Britt. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Beaver Branch, alt. 2,500 ft.

Panicum ramulosum, Michx. Lynchburg, alt. 500 ft.

Panicum Walteri, Poir. Marion Bluff, alt. 2,100 ft. Chatham Hill Gap road, at the base of Walker Mt., alt. 2,400 ft. Shannon Gap, Walker Mt., alt. 2,800 ft. Dickey Creek, alt. 2,700 ft. Nick's Creek, base of Pine Glade Mt., alt. 2,500 ft. Rye Valley, alt. 2,500 ft. New River, at mouth of Brush Creek,

alt. 2,200 ft. Beaver Creek, alt. 2,200 ft., var. *molle* (Vasey) Porter. Banks of the Middle Fork of the Holston, at Marion, alt. 2,100 ft.

Chamæraphis glauca (L.) Kuntze. (*Setaria glauca*, Beauv.) River banks, Marion, alt. 2,100 ft.

Chamæraphis viridis (L.) Porter. (*Setaria viridis*, Beauv.) Along New River, at the mouth of Brush Creek, alt. 2,200 ft.

Phalaris Canariensis, L. The Island, Marion, alt. 2,100 ft.

Brachyelytrum aristosum (Michx.) B. S. P. Nick's Creek, alt. 2,600 ft. Mouth of Hungry's Mother Creek, alt. 2,075 ft.

Phleum pratense, L. Marion fields, alt. 2,100 ft.

Agrostis alba, L. Peak Creek, Peak Mt., alt. 2,200 ft. Reed Creek, at base of Lower Rocks, alt. 2,000 ft.

Agrostis perennans, Turckerm. Skull Gap, Iron Mts., alt, 3,000 ft.

Trisetum Pennsylvanicum (L.) B. S. P. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Brushy Mt., alt. 3,400.

Arrhenatherum elatius (L.) M. & K. Near Marion, alt. 2,100 ft.

Danthonia compressa, Austin. Fields near Marion, alt. 2,100 ft. Base of Walker Mt., on Chatham Hill Gap road, alt. 2,400 ft.

Eatonia Dudleyi, Vasey. Hills and woods near Marion, alt. 2,100 ft. Brushy Mt., alt. 3,400 ft. Pond Mt., alt. 3,000 ft. Mountains about Buchanan, alt. 1,300 ft.

Poa compressa, L. Woods and river banks near Marion, alt. 2,100 ft. West slope of Mt. Roger, alt. 2,800–5,500 ft.

Poa debilis, Torr. Slopes and summit of Pond Mt., alt. 2,500–3,000 ft. Northeast slope White Top Mt., alt. 4,000–5,000 ft. Staley Creek and woods near Marion, alt. 2,100–2,300 ft.

It was somewhat of a surprise to find this grass so far south, Northern Pennsylvania being its southern limit formerly.

Poa sylvestris, A. Gray. Walker Mt., on the Chatham Hill Gap road, alt. 2,400 ft. Along road near Mollie's Knob, alt. 2,300 ft.

Panicularia elongata (Torr.) Kuntze. (*Glyceria elongata*, Trin.) Nick's Creek, at the base of Pine Glade Mt., alt. 2,500 ft. Hog-trough Creek, base of Iron Mts , alt. 2,600 ft.

Panicularia nervata (Willd.) Kuntze. (*Glyceria nervata*, Trin.) Chatham Hill Gap, Walker Mt., alt. 2,800 ft. River banks, Marion, alt. 2,100 ft.

Festuca elatior, L. Falls of the Holston (Middle Fork), alt. 2,050 ft.

Festuca nutans, Spreng. Staley Creek, near Marion, alt. 2,300 ft. Marion Bluffs, alt. 2,100 ft. Slopes of Pond Mt., alt. 3,000 ft.

Festuca octoflora, Walt. (*Festuca tenella*, Willd.) Pinnacle, alt. 3,500 ft.

Bromus ciliatus, L. Vicinity of Marion, alt. 2,100 ft. Falls of the Holston River, alt. 2,050 ft.

Bromus secalinus, L. Cumberland Gap, alt. 1,500 ft.

Elymus Canadensis, L. River banks, Marion, alt. 2,100 ft.

Hystrix Hystrix (L.) Millsp. (*Asprella Hystrix*, Willd.) River banks, Marion, alt. 2,100 ft.

Thuja occidentalis, L. At the mouth and upper waters of Hungry's Mother Creek, alt. 2,075–2,300 ft. Falls of the Holston River, alt. 2,500 ft. Along Reed Creek near Wytheville, alt. 2,000 ft.

Plentiful along the creeks in the valley of the Middle Fork of the Holston River, especially where the banks are rocky and cañon-like. Some large trees were noticed both at the Falls of the Holston and along Reed Creek. Measurements of the largest trees were taken which showed trunks at each locality of about fifteen feet in circumference.

Juniperus Virginiana, L. Banks of Reed Creek near Wytheville, alt. 2,000 ft. Near Marion, alt. 2,100 ft.

Taxus minor (Michx.) Britton. (*Taxus Canadensis*, Willd.) Along Hungry's Mother Creek, near the mouth, alt. 2,075 ft. Banks of the Middle Fork Holston River below the Falls, alt. 2,050 ft. Hitherto the yew was known to occur only as far south as Central Pennsylvania.

Pinus Virginiana, Mill. Along Peak Creek, on Peak Mt., alt. 2,200 ft. Slopes of Kate's Mt., W. Va., alt. 3,300 ft. Western slope of the Pinnacle, near Cumberland Gap, alt. 3,300 ft. Iron Mts., alt. 3,000 ft. Near Lynchburg, alt. 500 ft.

Pinus pungens, Michx. f. On Walker Mt., at Chatham Hill Gap, alt. 3,000 ft. On Round Top Mt., west of Seven Mile Ford, alt. 3,000 ft.

Apparently confined to the Alleghanies in the region explored.

Pinus rigida, Mill. On Peak Mt., alt. 2,200 ft. Slopes of Round Top Mt., west of Seven Mile Ford, alt. 2,600 ft.

Pinus Strobus, L. Mountains about Comer Creek, alt. 2,600 ft.

Picea rubra (Lamb.) Link. Slopes and summit of White Top Mt., alt. 4,800–5,678 ft. Mt. Rogers, alt. 4,900–5,719 ft. Pine M., alt. 4,900 ft.

Picea Mariana (Mill.) B. S. P. White Top Mt., alt. 5,000–5,678 ft. Pine Mt., alt. 4,900 ft. Mt. Rogers, alt. 5,719 ft.

Abies Fraseri, Lindl. The Southern fir had not as yet been collected north of the southern boundary of Virginia. To find the species within limits of the Northern States was one of our objects. After failing to secure it on any of the higher mountains explored, Mt. Rogers, the highest peak in Virginia, was resorted to. It was found to grow extensively on the upper parts of the mountain, extending from an elevation of about 5,000 feet to the summit, 5,719 feet above the level of the sea. The growth was very fine and many large trees were observed. The mountain being wooded to the top, the soil and rocks are the damp most of the time, and the forest is less exposed to violent storms and winds than the more open peaks of North Carolina

Tsuga Canadensis (L.) Carr. Iron Mts. about Comer Creek, alt. 3,000 ft. Along Peak Creek, on Peak Mt., alt. 2,200 ft.

Tsuga Caroliniana, Engelm. In a deep gorge in Little Brushy Mt., near Broad Ford, alt. 2,100 ft. Slopes of Farmer Mt., on the New River, alt. 2,200 ft.

The discovery of this very interesting hemlock at the two stations recorded brings it well into the limits of the Northern flora. Heretofore its northern limit was Blowing Rock Mountain, North Carolina.*

* Mem. Torr. Bot. Club, iii. 14.

Selaginella apus (L.) Spring. Bristol, alt. 1,900 ft. East bank of the Holston River, alt. 2,200 ft.

Lycopodium complanatum, L. Along South Fork of the Holston near Comer's Creek, alt. 2,600 ft.

Lycopodium obscurum, L. Dickey Creek, Iron Mts., alt. 3,000 ft.

Lycopodium lucidulum, Michx. Summit White Top Mt., alt. 5,678 ft. Peak Creek, Peak Mt., alt. 2,200 ft. Nick's Creek, at base of Pine Glade Mt., alt. 2,500 ft.

One small plant had the fruiting branches erect and crowded as in *L. Selago*.

Equisetum arvense, L. Banks of the Middle Fork of the Holston, alt. 2,100 ft.

Equisetum hyemale. L. Ravine of the Middle Fork of the Holston, alt. 2,000 ft. Reed Creek, at base of Lower Rocks, alt. 2,000 ft.

Botrychium Virginianum (L.) Sw. Dickey Creek, alt. 2,500 ft. Var. *gracile* (Pursh.) Eaton. Base of Walker Mt., on Chatham Hill road, alt. 2,500 ft.

Polypodium polypodioides (L.) A. S. Hitchcock. Banks of the Middle Fork of the Holston at Marion, alt. 2,100 ft. On rocks!

Growing on ledges in much the same way as it does in the valleys of North Carolina. We have not observed *P. incanum* on trees in the mountains, and in fact, after careful inquiry, can learn of no such instances, while it is not at all a rare sight to see *P. vulgare* growing on trees, especially on the higher peaks.* However in the warmer district *P. incanum* prefers to grow on trees and often completely clothes large trunks.

Polypodium vulgare, L. Summit White Top Mt., alt. 5,678 ft. Slopes of Pine Mt., alt. 4,000 ft.

Adiantum pedatum, L. Mouth of Hungry's Mother Creek, alt. 2,000 ft.

Pteris aquilina, L. Woods near Marion, alt. 2,100 ft.

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* Mem. Torr. Club, iii., 18.

Pellæa atropurpurea (L.) Link. Banks of the Holston at Marion, alt. 2,100 ft. Shannon Gap, Walker Mt., alt. 2,800 ft. Reed Creek, alt. 2,000 ft. Buchanan, alt. 1,100 ft.

Asplenium acrostichoides, Sw. Lynchburg, alt. 500 ft. Slopes of White Top Mt., alt. 5,000 ft.

Asplenium Filix-fœmina (L.) Bernh. Slopes of White Top Mt., alt. 5,000 ft.

Asplenium montanum, Willd. Peak Creek, on Peak Mt., alt. 2,200 ft. Nick's Creek, alt. 2,600 ft. White Rock Mt., alt. 4,400 ft. Dickey Creek, Iron Mts., alt. 2,800 ft. The fronds from the last-named locality were in some cases 18 cm. long.

Asplenium parvulum, Mart. & Galeotti. River bank, Marion, alt. 2,100 ft. Laurel Creek, near Broadford, alt. 2,200 ft. Reed Creek, alt. 2,000 ft. Buchanan, alt. 1,100 ft.

Asplenium platyneuron (L.) Oakes. River Bluffs, Marion, alt. 2,100 ft. Rye Valley, alt. 2,400 ft. Chatham Hill Gap, alt. 3,000 ft.

Asplenium Ruta-muraria, L. River bank, Marion, alt. 2,100 ft. Reed Creek, alt. 2,000 ft.

Asplenium Trichomanes, L. Staley Creek, Marion, alt. 2,300 ft. Along New River, at mouth of Brush Creek, alt. 2,200 ft. Fronds 25 cm. long at the last-named locality.

Camptosorus rhizophyllus (L.) Link. Dickey Creek, alt. 2,500 ft. Banks of the Middle Fork of the Holston, alt. 2,100 ft. Mouth of Hungry's Mother Creek, alt. 2,075 ft. Round Top Mt., west of Seven Mile Ford, alt. 3,300 ft. Reed Creek, at base of Lower Rocks, alt. 2,000 ft. Fronds 25–35 cm. long.

Phegopteris hexagonoptera (Michx.) Fee. Lynchburg, alt. 500 ft. Beaver Creek, base of Walker Mt., alt. 2,400 ft.

Dryopteris acrostichoides (Michx.) Kuntze. Hills near Marion, alt. 2,100 ft. Nick's Creek, alt. 2,100 ft.

Var. *Schweinitzii* (Beck.) Falls of the Middle Fork of the Holston River, alt. 2,050 ft.

Dryopteris Goldieana (Hook.) A. Gray. White Top Mt. alt. 4,700 ft.

Dryopteris marginalis (L.) A. Gray. Nick's Creek, alt. 2,400 ft. Slopes of White Top Mt., alt. 4,500 ft. Hungry's Mother Creek, Marion, alt. 2,200 ft. Reed Creek, at base of Lower Rocks, alt. 2,000 ft.

Dryopteris Noveboracensis (L.) A. Gray. Nick's Creek, alt. 2,500 ft. White Top, alt. 4,500 ft.

Dryopteris spinulosa (Retz.) Kuntze. Slopes of White Top, alt. 4,500 ft.

Dryopteris spinulosa dilatata (Hook.) Kuntze. Nick's Creek, alt. 2,400 ft. Mt. Rogers, alt. 6,719 ft. Summit White Top Mt., alt. 5,678 ft.

The fronds from the last-named locality were over 1 m. 30 cm. high.

Dryopteris spinulosa intermedia (Muhl.) Underwood. Slopes of White Top Mt., alt. 5,000 ft. Pine Mt., alt. 4,900 ft. West slope of Mt. Rogers, alt. 4,800–5,500 ft.

Cystopteris bulbifera (L.) Bernh. Banks of the Middle Fork of the Holston, alt. 2,100 ft.

Cystopteris fragilis (L.) Bernh. Pond Mt., alt. 3,000 ft. Walker Mt., Shannon Gap, alt. 3,000 ft.

Onoclea sensibilis, L. Banks of the Middle Fork of the Holston, alt. 2,100 feet.

Woodsia obtusa (Spreng.) Torr. Lynchburg, alt. 500 ft. Near Broadford, on the North Fork of the Holston, alt. 2,200 ft.

Dicksonia punctilobula (Michx.) A. Gray. Below the summit of White Top Mt., alt. 5,500 ft., in open pastures. Along White Top Creek, alt. 2,600 ft.

Osmunda cinnamomea, L. Nick's Creek, alt. 2,400 ft. White Top Mt., alt. 5,678 ft. Iron Mt., alt. 3,000 ft.

Osmunda Claytoniana, L. Slopes of White Top Mt., alt. 5,000 ft. Pond Mt., alt. 2,400 ft. Staley Knob, near Marion, alt. 2,200 ft.

Osmunda regalis, L. Brushy Mt., alt. 3,000 ft.

BRYOPHYTA.

MUSCI.

NAMED BY ELIZABETH G. BRITTON.

Sphagnum cymbifolium, Ehrh. Brushy Mt., alt. 2,800 ft.

Sphagnum imbricatum (Hornch.) Russ. var. *affine*, R. & C. Dickey Creek, alt. 2,500 ft.

Sphagnum quinquefarium (Braithw.) Warnst. Summit of White Top, alt. 5,678 ft. On vertical face of cliffs.

Andreæa petrophila, Ehrh. Summit of White Top Mt. On rocks, alt. 5,678 ft.

Andreæa Rothii, Web. & Mohr. (*A. rupestris* Turn.). Summit of White Rock Mt. On white sandstone, alt. 4,400 ft. Dickey Creek. On perpendicular cliffs, alt. 2,800 ft.

Polytrichum commune, L. On summit of White Top Mt. In wet ground, alt. 5,678 ft. Also on the borders of fir woods.

Polytrichum juniperinum, Willd. Comer Creek and Staley's Creek, alt. 2.200–2,500 ft.

Polytrichum Ohioense, Ren. & Card. Along Nick's Creek. In sandy soil, alt. 2,600 ft. On Round Top Mt. In sand, alt. 3,000 ft. Summit of White Top Mt. On ground and rocks, alt. 5,678 ft. Upper slopes of Mt. Rogers. On ground, alt. 5,000–5,719 ft.

Polytrichum gracile, Dicks. Ledges on cliffs of Dickey Creek, alt. 3,000 ft.

Pogonatum tenue (Menz.) E. G. Britton. (*P. brevicaule*, Beauv.) Banks of Nick's Creek. On clay. alt. 2,500 ft. Roadside, Nick's Creek, alt. 2,500 ft. Green Cove Springs, alt. 3,000 ft.

Catharinea angustata, Brid. North of Bristol. On ground, alt. 1,800 ft. Pond Mt. along Staley Creek, alt. 2,200 ft.

Catharinea undulata (L.) W. & M. Banks of Holston River at Marion. On ground, alt. 2,100 ft. Bed of Nick's Creek. In mud, alt. 2,500 ft. Wet rocks, summit of White Top, alt. 5,678 ft.

Georgia pellucida (L.) Rab. Along Bear Creek. On stumps, alt. 2,200 ft. (Long capsules). Summit of White Top Mt. On rotten wood, alt. 5,678 ft.

Webera sessilis (Schmid.) Lindb. (*Diphyscium foliosum*, Mohr.) Slopes of Pond Mt., east of Marion. On sandy ground, along dry roadsides, alt. 2,800 ft. Also in wet holes, banks of rivulet, covering the clay banks, fine specimens, alt. 3,000 ft. Banks of Nick's Creek. On wet, perpendicular rock, alt. 2,500 ft. Wet banks of Comer Creek, Brushy Mt., alt. 2,600 ft. In wet hole, Dickey Creek, alt. 3,000 ft.

The plants growing in wet shaded localities were much more leafy, less fertile and fruit larger than those growing in dry locations.

Fissidens adiantoides (L.) Hedw. South Fork of Holston River, near mouth of Hog-trough Creek. On roots, alt. 2,200 ft. Fall of Holston River. On sand, alt. 2,050 ft.

Fissidens decipiens, De Not. Falls of Holston River. On limestone cliffs, alt. 2,050 ft. On old logs in Spruce Swamp, on White Top, alt. 4,800 ft. On the ground, Comer Creek, Brushy Mt., alt. 2,600 ft. Pine Mt., alt. 3,500 ft.

Fissidens subbasilaris, Hedw. Eastern slope of White Top Mt. On rotten bark, alt. 5,000 ft. On Chatham Hill road, near base of Mollie's Knob. On dead wood, alt. 2,200 ft. On logs in woods, South Fork of the Holston River. Hungry's Mother Creek, alt. 2,200 ft.

Fissidens grandifrons, Brid. At Falls of Holston River. On limestone rocks, alt. 2,050 ft.

Astrophyllum cuspidatum (L.) Lindb. (*Mnium affine*, Bland.) Bed of Nick's Creek, on mud, alt. 2,600 ft. In valley between White Top and the Iron Mts., on ground, alt. 2,600 ft. Chatham Hill Gap, Walker Mt., on wet sand, alt. 3,300 ft. Eastern slope of White Top Mt., on ground, alt. 5,000 ft. Falls of Holston River, on sand, alt. 2,050 ft. Slopes of Pine Mt., near Troutdale, alt. 3,000–4,000 ft.

Astrophyllum sylvaticum, Lindb. (*Mnium cuspidatum*, Hedw.) Along Hungry's Mother Creek, on ground, alt. 2,200 ft. Banks of the Holston at Marion, alt. 2,100 ft.

Astrophyllum punctatum (L.) Lindb. In bed of stream near summit of White Top, alt. 5,600 ft. Large and sterile. On

eastern slope of White Top Mt., in mud, alt. 3,500 ft. In crevices of mountain rocks near summit, alt. 5,670 ft. Small, sterile. In bed of Nick's Creek, on mud, alt. 2,500 ft. Large and sterile. Western slope of Chestnut Ridge, in mud, alt. 3,000 ft. Bear Creek, on mountain rocks, alt. 2,300 ft.

Astrophyllum hornum (L.) Lindb. Along Dickey Creek, in wet sand, alt. 2,800 ft. Fruiting. Comer Creek, alt. 3,000 ft. Fruiting. Nick's Creek, alt. 2,600 ft. On limestone rocks. Sterile.

Astrophyllum rostratum, Schrad. Banks of Hungry's Mother Creek, in wet springy places, alt. 2,200 ft. Summit of White Top Mt., on rocks, alt. 5,678 ft. Wet banks near the Falls of the Holston, alt. 2,050 ft.

Sphærocephalus heterostichus (Brid.) E. G. Britton. Along Hungry's Mother Creek, on old log, alt. 2,200 ft. On Staley Knob, east of Marion, on wood, alt. 2,300 ft. At Falls of Holston River, on sand, alt. 2,050 ft. East Fork of Walker Creek, on damp, perpendicular cliff, alt. 2,200 ft.

Sphærocephalus palustris (L.) Lindb. On slopes of Brushy Mt. In bog, alt. 2,600 ft. Sterile.

Var. *polycephalum* (Br. & Sch.). Bear Creek, Bear Branch, alt. 2,200 ft. Sterile.

Bartramia pomiformis (L.) Hedw. Kate's Mt., W. Va. On ground, alt. 3,300 ft. Along Hungry's Mother Creek. On rocks, alt. 2,200 ft. Banks of Nick's Creek. On sandstone rocks, alt. 2,600 ft. On East Fork of Walker Creek. On perpendicular rocks, alt. 2,200 ft. In Hungry Hollow. At base of trees, alt. 2,200 ft. Summit of White Top, alt. 5,678 ft. On wet rocks, on the East side.

Philonotis fontana (L.) Brid. Eastern slopes of Walker Mt. At Chatham Hill Gap. On sandstone rocks, alt. 3,200 ft. In Staley's Creek, East of Marion. On old log, alt. 2,200 ft. Banks of Holston River, at Marion. On ground, alt. 2,100 ft. Along Bear Creek. On ground, alt. 2,300 ft.

Pohlia nutans (Schreb.) Lindb. (*Bryum nutans*, Schreb.) Summit of White Rock Mt. On white sandstone, alt, 4,400 ft.

Pohlia elongata, Hedw. Summit of White Top. On wet rocks and banks, alt. 5,678 ft.

Pohlia albicans (Wahl.) Lindb. (*Bryum albicans* Wahl.) Along a small branch of Hungry's Mother Creek, three miles north of Marion. On clay and sand, alt. 2,200 ft.

Bryum intermedium, Brid. Nick's Creek, alt. 2,200 ft.

Bryum ventricosum, Dicks. At the Falls of the Holston River. On limestone rocks, alt. 2,050 ft. Slopes of Pine Mt. On wet ground, alt. 4,000 ft. Summit of White Top Mt. On ground, alt. 5,678 ft. Bear Creek, alt. 2,200 ft. Hutton's Branch, on wet logs, alt. 2,300 ft.

Bryum atropurpureum, Wahl. Summit of White Top Mt. On ground, alt. 5,678 ft. East Fork Walker Creek. On ground, alt. 2,200 ft. Nick's Creek, alt. 2,500 ft. Burnt patches in fields, Bear Creek, alt. 2,200 ft.

Bryum bimum, Schreb. Along Hutton's Creek. On wet ground, alt. 2,250 ft. Staley's Creek, near Marion, alt. 2,200 ft. East bank of the Holston, near Marion. On wet rocks, alt. 2,100 ft.

Bryum cæspiticium, L. Banks of Nick's Creek. On rotten wood, alt. 2,600 ft. On burnt logs, Fox Creek Valley. Slopes of Iron Mt., alt. 3,000 ft.

Bryum capillare, L. On ledges, Walker Mt., Shannon Gap, alt. 4,000 ft. Sterile. Cliffs of White Rock, alt. 4,400 ft. Sterile.

Bryum argenteum, L. At Marion. On rotten roof, alt. 2,100 ft. Summit of White Top Mt. On ground, alt. 5,678 ft. Wet ledges, White Rock, alt. 4,400 ft. Nick's Creek, alt. 2,500 ft.

Bryum proliferum (L.) Sibth. Summit of White Top Mt. On stumps, alt. 5,678 ft. Eastern slope of White Top Mt. On old stump, alt. 4,800 ft. Green Cove. On old stumps, alt. 3,000 ft. Pine Mt., near Troutdale, alt. 3,500 ft. East bank of the Holston, near the falls, alt. 2,050 ft. Wet rocks, Walker Mt., Shannon Gap, alt. 2,800 ft.

Funaria hygrometrica (L.) Sibth. Along Holston River, Marion, On ground, alt. 2,100 ft. Banks of Nick's Creek. On wet ground, alt. 2,500 ft. On Bear Creek. In wet clay, alt. 2,250 ft. Banks of Peak Creek, on Peak Mt. On ground, alt. 2,200 ft. Staley's Creek, alt. 2,200 ft.

Physcomitrium turbinatum, Michx. (*Physcomitrium pyriforme* of L. & J. Man.) Staley's Creek and Pond Mt., alt. 2,200 ft.

Barbula humilis, Hedw. (*B. cæspitosa*, Schwægr.) Along Nick's Creek. On rotten wood, alt. 2,400 ft. Hungry Hollow. On old wood, alt. 2,200 ft. Along Holston River, at Marion. On rocks, alt. 2,100 ft. Staley's Knob. On ground, alt. 2,500 ft. Eastern slope of Walker Mt. On ground, alt. 3,000 ft.

Barbula reflexa, Brid. (*B. recurvifolia*, Sch.) Along Holston River, at Marion. In spring, alt. 2,075 ft. On limestone rocks, forming dense brown cushions. Sterile. Bear Creek, alt. 2,300 ft.

Tortella cæspitosa (Schwægr.) Limpr. (*Barbula cæspitosa*, Schwægr.) Summit of Walker Mt., alt. 2,000 ft. Nick's Creek, alt. 2,300 ft. Roadsides at Marion, alt. 2,100 ft.

Encalypta streptocarpa, Hedw. Bear Creek. On limestone rocks, alt. 2,250 ft. Dickey Creek. On rocks with *Fabronia octoblepharis*, alt. 2,600 ft.

Mollia viridula (L.) Lindb. Along Holston River, Marion. On stones, alt. 2,100 ft. Banks of Nick's Creek. On rocks, alt. 2,600 ft.

Mollia tenuirostris (Hook. & Taylor) Lindb. (*Didymodon cylindricus*, Br. & Sch.) In crevices of wet rocks. Sterile. Summit of White Top, alt. 5,678 ft.

Gymnostomum rupestre, Schwægr. Along Hutton's Branch. On damp rock, alt. 2,200 ft. Forming calcareous tufa. Falls of the Holston River, alt. 2,050 ft. Associated with *Fissidens grandifrons*.

Leucobryum glaucum (L.) Br. & Sch. Along Staley's Creek, near Marion. On ground, alt. 2,200 ft. Sterile.

Leucobryum albidum (Brid.) Lindb. Along Dickey Creek. In damp sand, alt. 3,000 ft. c. fr. Banks of Nick's Creek. On ground, alt. 2,500 ft. c. fr.

Dicranum scoparium (L) Hedw. Summit of White Top Mt., on trees, alt. 5,678 ft. Also on wet rocks mixed with *Polytrichum Ohioense*. Banks of Nick's Creek, on ground, alt. 2,500 ft. Along Staley's Creek, alt. 2,300 ft. On logs in dense woods, Pine Mt., alt. 4,000 ft.

Dicranum scoparium (L.) Hedw. var. *rupestre*, Sull. & Lesq. Summit of Pond Mt. On rocks, mixed with *D. spurium*, alt. 3,400 ft.

Dicranum spurium, Hedw. Summit of Pond Mt., near Marion. On ground, alt. 3,400 ft.

Dicranum Bonjeani, De Not. (*D. palustre*, La Pyl.) Summit of White Rock. Forming dense sterile patches, in depressions where the water stands, alt. 4,400 ft.

Dicranum flagellare, Hedw. Along Nick's Creek, in cracks of old logs, alt. 2,500 ft. Pond Mt., Staley Creek, alt. 2,200 ft. On rotten logs, wet places on Walker Mt., alt. 3,000 ft. Summit of the ridge of Iron Mt., alt. 3,100 ft. Comer Creek, alt. 2,600 ft.

Dicranum fulvum, Hook. Chatham Hill Gap, on Walker Mt., on sandstone, alt. 3,000 ft. Summit of Pine Mt., on rocks, alt. 4,900 ft. Bear Creek, on sandstone rocks, alt. 2,300 ft. East slope of White Top, alt. 5,000 ft. Summit of White Top, alt. 5,678 ft. On rocks in the bed of stream in Dickey's Creek, alt. 3,000 ft. Also on sandstone rocks with *Umbilicaria*, along Dickey's Creek, alt. 2,600 ft. Eastern slope of White Top Mt., on trunks of trees, alt. 5,000 ft.

A peculiar form in habit and general aspect was found at the same locality, alt. 3,500 ft. Growing on living trees of *Betula lutea* and *Fagus ferruginea*, about 10 or 12 feet from the ground, forming dense cushions and abundantly fruiting. In aspect and habit quite distinct from all other forms of *D. fulvum*, collected on rocks. Color yellowish-brown, stems densely matted with ferrugineous tomentum, leaves quite curly and serrate at tip, but frequently broken off as in *D. viride*. Dicœcious: Antheridia terminal in buds on separate plants or occasionally in small buds on the tomentum, of either the archegonial or antheridial plants.

Dicranum viride (Sull. & Lesq.) Sch. Slemp Creek, Nick's Creek and Hungry's Mother Creek, alt. about 2,500 ft. Sterile. Falls of the Holston River, alt. 2,050 ft. on old log, fruiting. The Manual says, on page 69: "Not rare in the Northern States, but not yet found in fruit." We have 8 localities in our herbarium in which fruit has been collected!

On June 8th the plants were still young, and the capsules either immature or old but still complete enough to enable me to

supplement the description in the Manual with the fruit. Inflorescence dicœcious? Perichætium sheathing, bracts 3–5mm. long innermost tapering and broken off at tip, outer suddenly subulate, pedicels 8–10mm. long, erect, scarcely twisted, capsules erect, straight, cylindric or narrowly ovoid, smooth or slightly wrinkled when old, not sulcate, 2–5mm. long, with a straight beak, 1mm. long, mouth small, operculum conic rostrate, annulus narrow, falling with the lid, peristome short, regular, teeth split to middle, pale above, striolate below, trabeculate. Spores not seen. The base of the leaves as figured in Sullivant's Icones is not correct, as the cells next the vein are lax and hyaline, those of the basal angles thick-walled and brown, as figured in the Bryologia Europæa Supplement T. 1. None of our capsules are quite as mature as that figured by Schimper, but one collected by Austin in the Catskill Mts. in 1875 is exactly as drawn.

Dicranum fuscescens, Turner. Summit of Mt. Rogers. On trees, alt. 5,719 ft. In dense masses on wet rocks, summit of White Top, alt. 5,678.

Dicranum longifolium, Ehrh. Summit of White Top Mt. Fruiting. Eastern slope of White Top Mt., on trunks of *Picea*, alt. 4,800 ft. On twigs and trunks of *Picea*, alt. 5,678 ft. Fruiting, also sterile. On wet rocks, southwestern side of summit of White Top, alt. 5,678, ft., with *Campylopus Virginicus* and *Zygodon excelsus* not showing its glaucous green color and lustre till dried. On summit and slope of Mt. Rogers. On trunks of evergreen trees, alt. 5,000–5,719 ft. Summit of Pine Mt. On trunks of *Picea Canadensis*, alt. 4,900 ft.

Dicranum montanum Hedw. Slemp Creek (Brushy Mt.). On old log in swamp, alt. 2,800 ft. Sterile and rare.

Onchophorus crispatus (Dicks.) Lindb. [*Rhabdoweisia denticulata* (Brid.)] Summit of White Rock Mt. On soil collected on white sandstone, alt. 4,400 feet, fruiting abundantly June 22d. Summit of White Top Mt., mixed with *Didymodon cylindricus*, fruiting May 28th, alt. 5,678 ft. On wet rocks, Dickey Creek, alt. 3,000 ft. Archegonial plants, June 17th.

Campylopus Virginicus (Aust.) L. & J. Summit of White Top Mt. On sandstone (wet), alt. 5,678 ft. Summit of White Rock Mt. On white sandstone, alt. 4,400 ft.

Dicranella heteromalla (L.) Schimp. Eastern slope of White Top Mt. On ground, alt. 3,000 ft. Along White Top Creek. On

sand, alt. 2,600 ft. Chatham Hill Gap, Walker Mt., alt. 3,000 ft. Brushy Mt. Along Slemp Creek, alt. 2,700 ft. Growing with *Campylopus Virginicus* on wet cliffs, northwest side of White Top Mt., alt. 5,678 ft. An unusual habitat and peculiar form of this common species, remarkable for its short recurved pedicels!

Ditrichum pallidum, Schreb. Along Nick's Creek. On clay soil, alt. 2,500 ft. Shannon Gap, Walker Mt., alt. 3,100 ft. On rocks. Summit of Iron Mt., near Troutdale, alt. 3,300 ft. Bristol, alt. 1,800 ft.

Ceratodon purpureus (L.) Brid. Marion. On rotten roof, alt. 2,100 ft. Along Hungry's Mother Creek. On burned wood, alt. 2,200 ft. On East Fork Walker Creek. On ground, alt. 2,200 ft. Bear Branch of Bear Creek, alt. 2,300 ft.

Orthotrichum Ohioense, Sull. & Lesq. Eastern slope of White Rock Mt. On trees, alt. 4,000 ft. Western slope of Pond Mt. On trees, alt. 2,500 ft.

Orthotrichum strangulatum, Sull. On summit of Brushy Mt., on trees, alt. 3,000 ft. Marion, on *Prunus Cerasus*, alt. 2,100 ft. On Hutton's Creek, on *Juglans*, alt. 2,300 ft. Along Staley's Creek, near Marion, on beech, alt. 2,200 ft. Summit of Pond Mt., east of Marion, on dead wood, alt. 3,000 ft.

Weissia ulophylla, Ehrh. (*Ulota crispa* Brid.). Summit of Pond Mt., on trees, alt. 3,000 ft. Eastern slope of White Top Mt., on trees, alt. 4,500 ft. Summit of Pine Mt., on trees, alt. 4,900 ft. Along Hutton's Branch, on old bark, alt. 2,200 ft. East Fork Walker Creek, on birch, alt. 2,200 ft.

Weissia crispula, Lindb. (*Ulota crispula*, Br. & Sch.) Along Fox Creek, at foot of Pine Mt, on birch and hemlock, alt. 3,000 ft. Summit of White Top Mt., on *Picea*, *Betula lutea*, alt. 5,678 ft. Along White Top Creek, on trees, 2,600 ft.

Weissia coarctata (P. Beauv.) Lindb. (*Ulota Ludwigii*, Brid.). Summit of Pond Mt., east of Marion, on log, alt. 3,200 ft. East Fork Walker Creek, on birch, alt. 2,200 ft. Eastern slope of White Top Mt., on *Fagus*, alt. 5,000 ft. Along Hutton's Branch, on old bark, alt. 2,200 ft. Summit of White Top Mt., on rocks, alt. 5,678 ft.

Weissia Americana (P. Beauv.) Lindb. (*Orthotrichum Americanum*, Beauv. *Ulota Hutchinsiæ*, Smith.) At Chatham Hill Gap, on Walker Mt., on sandstone, alt. 3,000 ft. Summit of White Rock Mt., on white sandstone, alt. 4,400 ft. Summit of White Top Mt., on sandstone, alt. 5,678 ft. Brushy Mt., on rocks, alt. 2,600 ft. Eastern slope of White Top Mt., on sandstone, alt. 5,000 ft. Dickey Creek, alt. 2,500 ft. On huge erratic boulder in woods, growing on *Umbilicaria Dillenii*, alt. 2,800 ft.

Weissia Americana var. *rufescens*, E. G. B. Bull. Torr. Bot. Club, 21: 69 (1894). Summit of White Top Mt., on trees in dense woods of *Picea Mariana*, mixed with *Dicranum longifolium*, *Zygodon viridissimus* and *Weissia ulophylla*, alt. 5,678 ft.

Zygodon viridissimus (Dicks.) Brown. On summit of White Top Mt., alt. 5,678 ft. On trunks of *Picea rubra* (Lamk.) Link., associated with *Dicranum longifolium*, *Ulota crispa* and *Frullania Asagrayana*. Fruiting. On eastern slope of White Top Mt., alt. 4,800 ft.; also on spruce. Sterile. (Plate 80.)

Zygodon excelsus (Sull.) E. G. Britton. (*Syrrhopon excelsus*, Sull. *Zygodon Sullivantii*, C. Muell.) Western side, summit of White Top Mt., on wet cliffs, alt. 5,600 ft. Also on *Abies rubra*, on summit, alt. 5,678 ft., associated with *Dicranum longifolium*, *Ulota crispa* and *Frullania Asagrayana*.

Drummondia prorepens (Hedw.). (*Drummondia clavellata*, Hook.) On western slope of Cove Mt., on *Prunus serotina*, alt. 1,000 ft. On western slope of Iron Mt., at Skull Gap, on trees, alt. 3,000 ft. Along cliffs of New River, Carroll Co., on branches, alt. 2,200 ft. At Marion, on *Prunus Cerasus*, alt. 2,100 ft. On summit of White Rock mountain, on trees, alt. 4,400 ft. At Shannon Gap, on Walker Mt., on fallen trees, alt. 3,100 ft. Summit of Pond Mt., east of Marion, on dead trees, alt. 3,000 ft. Dickey's Creek, alt. 2,800 ft.

Grimmia apocarpa (L.) Hedw. Shannon Gap, Walker Mt., alt. 2,800 ft. On rocks in woods below the summit of White Top Mt., alt. 5,600 ft.

Grimmia apocarpa (L.) Hedw. var. *rivularis* (Brid.) W. & M. Banks of the Holston River at Marion, on limestone rocks, alt. 2,100 ft. Also at Kobenhaven's Mills, alt. 2,050 ft.

Grimmia Pennsylvanica, Schwægr. Banks of Holston river at Marion, on limestone rocks, alt. 2,100 ft. Slemp Creek, on rocks, alt. 2,800 ft. Dickey Creek, on cliffs, alt. 3,000 ft.

Grimmia Olneyi, Sull. In bed of Dickey Creek, alt. 2,800 ft. Sterile.

Grimmia acicularis (L.) C. Müll. (*Racomitrium aciculare* Brid.) Bed of Dickey Creek. On stones in water, alt. 2,800 ft., forming dark green mats, with stems often 15 cm. long. Sterile.

Grimmia fascicularis (Schrad.) C. Müller. (*Racomitrium fasciculare*, Brid.) Summit of White Rock Mt. On wet, white sandstone, alt. 4,400 ft.

Thuidium recognitum (Hedw.) Lindb. On Staley's Knob, near Marion. On log, alt. 2,500 ft. At the falls of the Holston River. On ground, alt. 2,050 ft. On limestone rocks, Hungry's Mother Creek, alt. 2,200 ft. On Slope of White Top Mt. On old wood, alt. 5,000 ft. Along Nick's Creek. On old logs, alt. 2,300 ft.

Thuidium delicatulum (L.) Nutt. On the under side of shelving rocks and ledges. Slopes of Pine Mt., near Troutdale, alt. 3,000 ft.

Thuidium scitum (Beauv.) Austin. Summit of Pond Mt. On ground, alt. 3,400 ft. On Nick's Creek. On ground, alt. 2,400 ft.

Leskea obscura, Hedw. South Fork of the Holston, near Add Wolf. At base of *Platanus occidentalis*, alt. 2,200 ft.

Leskea polycarpa, Ehrh. Near Lyons Gap, Walker Mt. On base of tree, alt. 2,500 feet. On Hungry's Mother Creek, in wet places, alt. 2,200 ft. Island in the Holston River near Marion, alt. 2,100 ft. ·At base of tree in swamp. Beside spring between the turnpike and the South Fork of the Holston, not far from Seven-Mile Ford, alt. 2,100 ft.

Leskea denticulata, Sulliv. Slopes of White Top. On trees, alt. 4,000–5,800. On *Cratægus punctata*, summit of White Top, in dense wet woods, alt. 5,678 ft. Mixed with *Brachythecium acuminatum* var. *setosum*, *Zygodon viridissimus*, and *Radula complanata*.

Leskea tristis, Cesati. At Falls of the Holston River. On trees, alt. 2,050 ft. Along Hungry's Mother Creek. On *Acer saccharinum*, alt. 2,200 ft. Eastern slope of White Top. On *Fagus*, alt. 4,600 ft.

Anomodon attenuatus (Schreb.) Hedw. Along Staley's Creek, near Marion. On trees, alt. 2,150 ft. On summit of Pine Mt. On trunks of trees, alt. 4,900 ft. With long slender branches, on trees, near the house on summit of White Top, alt. 5,300 ft. On trees along McGrady's Creek, North Fork of the Holston, alt. 2,200 ft. A form with leaves remarkably dentate at apex found on rocks along Dickey Creek, alt. 2,700 ft.

Anomodon obtusifolius, Br. & Sch. On the eastern slope of White Top Mt., on trees, alt. 4,800 ft. In valley between White Top and the Iron Mts., on trees, alt. 2,600 ft. On the summit of Pine Mt., on trees, also on the under side of huge bowlders, long creeping stems, alt. 4,900 ft. On Staley's Knob, East Marion, on trunks of beech, alt. 2,300 ft. Summit of White Top Mt., on the trunks, alt. 5,678 ft.

Anomodon rostratus (Hedw.) Schimp. Along Slemp Creek, on stumps, alt. 2,400 ft. Along Hungry's Mother Creek, on trees (roots), alt. 2,100 ft. Banks of Nick's Creek, on trees, alt. 2,600 ft. Along Staley's Creek near Marion, on trees, alt. 2,200 ft. Falls of Holston River, on rocks, alt. 2,050 ft. On stones in fields near Marion, alt. 2,100 ft. On rocks, Pine Mt., near Troutdale, alt. 3,500 ft.

Anomodon viticulosus (L.) H. & T. Banks of the Holston River, at Marion, on limestone rocks, alt. 2,100 ft. In valley between White Top and the Iron Mts. along White Top Creek, on trees, alt. 2,600 ft. In Hungry Hollow, on wet rocks, alt. 2,200 ft. At Falls of the Holston River, on wet rocks, alt. 2,050 ft.

Amblystegium filicinum (L.) Lindb. In Hutton's Hollow, on wet bank, alt. 2,500 ft.

Amblystegium hygrophilum (Jur.) Sch. Nick's Creek, on black loamy soil, alt. 2,500 ft.

Amblystegium irriguum (H. & W.) Br. & Sch. Wet bank, Hutton's Branch, alt. 2,100 ft. Bear Branch, Bear Creek, alt. 2,300 ft.

A. irriguum var. *spinifolium*, L. & J. In a spring near Saltville, alt. 2,100 ft.

Amblystegium varium (Hedw.) Lindb. Along Hungry's Mother Creek. In sand, alt. 2,200 ft. Falls of Staley's Creek. On rocks, alt. 2,300 ft. Summit of White Top Mt. On old wood, alt. 5,678 ft. Along Holston River, Marion, On ground, alt. 2,100 ft.

Amblystegium serpens (L.) Br. & Sch. On East Fork of Walker Creek. On old log, alt. 2,200 ft. Hungry's Mother Creek. On old logs, alt. 2,300 ft.

Amblystegium orthocladon (Beauv.) Aust. Along Staley's Creek, near Marion. On ground, alt. 2,100 ft. Falls of the Holston River. On sand, alt. 2,050 ft.

Amblystegium riparium (L.) Br. & Sch. var. *elongatum*, Sch. Syn. Musc. Eu. p. 748 (var. *fluitans* L. & J. Man. p. 377; var. *fontinaloides*, Aust. in Herb.) Stems often over a foot long, branching pinnately, branches either simple or also pinnately divided, frequently 6–10 cm. long, leaves acuminate 3–4 mm. long, slightly decurrent with angular cells at angles, all lax, vein single, ending below the apex, margins entire. Sterile in calcareous spring near Wallace Switch, alt. 1,900 ft. J. K. Small. Marion, on wet boards, alt. 2,100 ft.

Amblystegium Lescurii, Sull. Bear Creek. On wet rocks, alt. 2,300 ft. On wet sloping rocks in rivulet. Slopes of Pond Mt., alt. 2,500 ft. In Nick's Creek, alt. 2,600 ft.

Amblystegium eugyrium (Br. & Sch.) Lindb. Along White Top Creek, on rocks, alt. 2,600 ft. Bear Creek, on wet rocks, alt. 2,200 ft. Eastern slope of White Top Mt., on rocks, alt. 4,000–5,000 ft., fruiting. Dickey Creek, on wet rocks, with *Racomitrium aciculare*, alt. 2,800 ft, fruiting.

Amblystegium dilatatum (Wils.) Lindb. Falls of Staley's Creek, east of Marion, on (rocks) wet, alt. 2,300 ft. Along Bear Creek, on wet rocks, alt. 2,200 ft.

Amblystegium adnatum, Hedw. Banks of the Holston River, near Copenhaven's Mills, on white cedars, alt. 2,050 ft. Shannon Gap, Walker Mt., alt. 2,800 ft., on rocks. Summit of White Rock, alt. 4,400 ft., on rocks.

Amblystegium aduncum (L.) Lindb. (*Hypnum uncinatum*, Hedw.) East bank of the Holston River near the Falls, alt. 2,050 ft.

Hypnum Boscii, Schwægr. In Hungry Hollow, on ground, alt. 2,300 ft. North of Bristol, on old wood, alt. 1,800 ft. Along Bear Creek, on rocks, alt. 2,200 ft. At Falls of Holston River, on rocks, alt. 2,050 ft. Western slope of Cove Mt., near Buchanan, on stumps, alt. 1,000 ft. Comer's Creek, in dense close mats on wet rocks near the dam, alt. 2,500 ft.

Hypnum strigosum, Hoffm. Along Nick's Creek, on ground, alt. 2,600 ft. East fork Walker Creek, on ground, alt. 2,200 ft.

Hypnum hians, Hedw. Nick's Creek, on black loamy soil, sterile. Bear Creek, alt. 2,800 ft., also sterile. Hungry's Mother Creek, on old logs with *H. hispidulum*, Brid., sterile.

Sullivant, in the Icones Muscorum, p. 163, says of the vein: "Costa tenui supra medium abrupte desinente." Figures 5 and 8, t. 104, show this character well but fail to indicate as a very marked character in the profile of the leaves, that the keeled vein ends in a dorsal spine a short distance below the apex. Austin's Musci Appalachiani, No. 335, with which this was compared, verifies this statement.

Hypnum demissum, Wilson. On wet rocks, Bear Branch of Bear Creek, alt. 2,200 ft., with *H. eugyrium*. On wet rocks in Dickey's Creek, alt. 3,000 ft. In bed of Nick's Creek, alt. 2,500 ft. McGrady's Creek, foot of White Rock, alt. 3,000 ft.

Hypnum recurvans, Schwægr. On Staley's Knob, east of Marion. On log, alt. 2,400 ft. Banks of Holston River at Marion. On *Tsuga Canadensis*, alt. 2,100 ft. Along Nick's Creek. On old log, alt. 2,500 ft. Also on black loam, a lax form with long, creeping, nearly simple branches and very glossy yellow leaves, fruit scarce. Sinclair's Creek, alt. 2,300 ft. On old logs. White Top Creek, alt. 2,600 ft. On the ground, densely fruited with pedicels over 2 cm. long, and capsules contracted below the mouth when old. On old logs in dense woods, base of Pine Mt., near Troutdale, alt. 3,000 ft.

Hypnum laxepatulum, L. & J. Sull. Icon. Musc. Suppl. 93, t. 69. Bot. Gaz. I. 30. Summit of White Top Mt., alt. 5,678 ft. In thin flat mats on the vertical faces of wet rocks in shade, with

Herberta adunca and *Campylopus Virginicus;* also on roots of *Picea rubra.*

It seems to me that the species is distinct from *Hypnum recurvans* and well-named, maintaining a different habit, less glossy in general aspect, more loosely branched and leaves less uncinate, with a short pedicel, only 1 cm., while in *Hypnum recurvans* it is usually 2 cm. I have been favored with a portion of the type from Sullivant's Herbarium by Dr. Watson.

In comparison, I find that the cilia, however, are developed on James' own specimens and are single, but with a divisional line as if two were united. Sullivant figured it without cilia and the Manual says "cilia none or rudimentary."

Hypnum cylindricarpum, CM. McGrady's Creek, alt. 3,000 ft. On old log in fine fruit. Capsules inclined and contracted below the mouth.

Hypnum microcarpum, CM. Banks of the Holston at Marion, alt. 2,100 ft. In dense glossy mats at base of *Tsuga Canadensis.* Sterile. Falls of the Holston, alt. 2,050 ft. On fallen log in dense woods. Fertile.

Hypnum serrulatum, Hedw. Summit of White Top Mt., alt. 5,678 ft. On trees with *Dicranum fuscescens.*

Hypnum rusciforme, Weiss. On Pine Mt., in stream, alt. 4,000 ft. In valley between White Top and the Iron Mts., along White Top Creek, in sand, alt. 2,600 ft.

Hypnum acuminatum, Beauv. Nick's Creek. On ground, alt. 2,600 ft. Below summit of White Top Mt., alt. 5,500 ft. On old logs, below the house.

VAR. FILIFORME, n. var. Summit of White Top Mt., alt. 5,670 ft. On *Cratægus punctata* with *Leska denticulata, Zygodon viridissimus* and *Radula complanata.* A very slender form growing in dense wet woods. Branches often 3 cm. long and undivided, leaves serrulate nearly to base, angles decurrent, cells rectangular, vein ending above the middle, with the two lateral folds faint. Sterile. E. G. BRITTON.

Hypnum lætum, Brid. In dense mats on rocks in woods. Slopes of Pine Mt. near Troutdale, alt. 3,500 ft. Walker Mt., Shannon

Gap, alt. 2,800 ft. Ledges of limestone cliffs. Staley's Creek, near Marion, alt. 2,100 ft. On logs.

Hypnum plumosum, Hudson. On wet rocks. Shannon Gap, Walker Mt., alt. 2,800 ft.

Hypnum rutabulum, L. Along Hutton's Creek. On wet rocks, alt. 2,500 ft. Bear Creek, alt. 2,200 ft. Sterile. Slemp Creek, alt. 2,800 ft. Sugar Grove; South Fork of the Holston River. On logs in mill dam, alt. 2,200 ft.

Hypnum rivulare, Bruch. Falls of Staley's Creek east of Marion. On wet rocks, alt. 2,300 ft.

Hypnum Alleghaniense, C. Mull. *Thamnium Alleghaniense*, Br. & Sch. Along Bear Creek. On wet rock in run, alt. 2,250 ft. At Falls of the Holston River, on perpendicular rocks, alt. 2,050 ft.

Myurella Careyana, Sull. Banks of Holston River, at Marion. On damp silt from limestone rocks, alt. 2,100 ft. Sterile.

Fabronia octoblepharis, Schwægr. Along Dickey Creek. On perpendicular slate cliffs, alt. 2,800 ft.

Anacamptodon splachnoides, Brid. On North Fork of Holston River near Plasterburg. In old knot hole of *Platanus occidentalis* along the river, alt. 2,200 ft. and McGrady's Creek. Base of Pine Mt., near Troutdale, in dense maple woods, in small knot-hole of fallen branch, alt. 3,000 ft.

Thelia hirtella (Hedw.) Sull. Along Holston River, Marion. At base of trees, alt. 2,100 ft.

Hylocomium brevirostre (Ehrh.) Br. & Sch. Along Nick's Creek, on stumps, alt. 2,600 ft. On the summit of White Top Mt., on the ground. alt. 5,678 ft. Slope of Pine Mt., on rocks, alt. 3,600 ft. White Top Creek, alt. 3,600 ft. On the ground and on logs.

Hylocomium proliferum (L.) Lindb. Summit of White Top Mt., on ground, alt. 5,678 ft. Summit of Mt. Rogers, on ground, alt. 5,719 ft. Summit of Pine Mt., on ground, alt. 4,900 ft. Ravine of White Top Creek, alt. 3,000 ft.

Hylocomium parietinum (L.) Lindb. Walker Mt., Lyons' Gap, alt. 2,800 ft. Summit of White Top Mt., alt. 5,678 ft. In dense mats under shade of *Picea rubra*.

Hylocomium triquetrum (L.) Br. & Sch. On the summit of White Top Mt., on the ground, alt. 5,678 ft. Summit of Pine Mt., on ground, alt. 4,900 ft.

Hylocomium rugosum (L.) De Not. On Kate's Mt., W. Va., on ground and rocks, alt. 3,300 ft.

Campylium hispidulum (Brid.) Mitt. Wet ledges of Walker Mt. at Shannon Gap, alt. 2,800 ft. Hungry's Mother Creek, at base of stump, alt. 2,200 ft. Comer Creek, alt. 3,000 ft. On old stump.

Campylium stellatum, Schreb. Wet banks, Comer Creek, alt. 2,800 ft.

Campylium chrysophyllum (Brid.). Summit of Pond Mt., on logs, alt. 3,400 ft. North of Bristol, on old log, alt. 1,800 ft. On Kate's Mt., W. Va., on ground, alt. 3,300 ft. Along East Fork of Walker Creek, on rock, alt. 2,200 ft. Nick's Creek, on rotten log, alt. 2,600 ft. Falls of Holston River, on trees, alt. 2,050 ft. Marion, on rocks, alt. 2,100 ft.

Ctenidium molluscum (Hedw.) Mitt. Falls of Holston River, on ground, alt. 2,050 ft. White Top Creek, on fallen log, alt. 3,000 ft.

Ctenidium molluscum (Hedw.) var. *condensatum*, Schimp. At Chatham Hill Gap, on Walker Mt., on rocks, alt. 3,000 ft.

Ptilium crista-castrense (L.) De Not. On the summit of White Top Mt. On ground, alt. 5,678 ft. On the western slope of Mt. Rogers. On ground, alt. 5,500 ft. Pine Mt. near Troutdale, alt. 3,000 ft.

Stereodon pallescens (Hedw.) Lindb. Eastern slope of White Top Mt. On dead wood, alt. 4,800 ft. Along White Top Creek, in valley between White Top and Iron Mts. On trees, alt. 2,600 ft. Summit of White Top Mt. On trees, alt. 5,678 ft. Mixed with *H. laxepatulum*.

Stereodon fertile (Sendt.) Eastern slope of White Top Mt. On logs, alt. 5,000 ft. Along White Top Creek. On trees, alt. 2,600 ft. Slemp Creek. On decayed logs, alt. 2,800 ft. Comer Creek. On decayed logs, alt. 2,500 ft.

Stereodon curvifolius (Hedw.) Brid. On eastern slope of White Top Mt. On logs, alt. 5,000 ft. In Hungry Hollow. On stump, alt. 2,200 ft. Along East Fork of Walker Creek. On old wet log, alt. 2,200 ft. Staley's Creek, slopes of Pond Mt., alt. 2,200 ft. Bear Creek, alt. 2,200 ft. On fallen logs, slopes of Pine Mt., near Troutdale, alt. 3,000 ft.

Stereodon imponens (Hedw.) Brid. Eastern slope of White Top Mt. On trees, alt. 5,000 ft. In valley between White Top and the Iron Mts., alt. 2,700 ft. Along Staley's Creek, near Marion. On stump, alt. 2,200 ft. On Staley's Knob, east of Marion. On logs, alt. 2,400 ft. Eastern slope of White Top Mt. On old log, alt. 5,000 ft. Nick's Creek, alt. 2,300 ft. McGrady's Creek, alt. 2,500 ft. Kern Valley. In dense patches on old logs, alt. 2,200 ft.

Stereodon pratense (Koch) Brid. Knobs near Marion, alt. 2,200 ft. On old logs. Hungry Hollow, alt. 2,300 ft.

Pylaisia intricata, Br. & Sch. At base of decayed trees. Beaver Creek, alt. 2,500 ft

Pylaisia velutina, Br. & Sch. At Chatham Hill Gap, on Walker Mt. On rotten wood, alt. 2,500 ft. On island at Marion. On *Platanus occidentalis*, alt. 2,100 ft. Slope of White Top Mt. On trees, alt. 4,800 ft. Along Holston River, at Marion. On very rotten wood, alt. 2,100 ft.

Plagiothecium elegans, Hook. Lindb. Summit of Pine Mt. On rocks, alt. 4,900 ft.

Plagiothecium denticulatum, Br. & Sch. Wet rocks. West side of White Top Mt., alt. 5,678 ft. On rocks. Dickey Creek, alt. 3,000 ft.

Cylindrothecium cladorhizans (Hedw.) Schimp. Summit of Walker Mt. at Chatham Hill Gap. On old wood, alt. 3,000 ft.

Cylindrothecium seductrix (Hedw.) Sull. At Marion. On rotten roof, alt. 2,100 ft. On wet rocks, Walker Mt., alt. 2,800 ft. Shannon Gap. On fallen logs and at base of trees. Island in the Holston River near Marion, alt. 2,100 ft. Knobs near Marion, on old trees, alt. 2,100 ft.

Hookeria Sullivantii, Müller. Plants forming bright glossy green patches; stems not matted nor tomentose, prostrate at base, 2–4 cm. long, innovations ascending, leaves intricate, flattened in one place, occasionally rooting at apex, 3–5mm. long, ovate-lanceolate, veinless, entire, bordered by a row of slightly larger, clearer cells, apex acute, areolation regularly rhomboidal, basal cells not enlarged, base contracted. Monœcious, autoicous, the antheridia few in small leafy buds near the base of the pedicel. Perichætial bracts few, smaller than the leaves, more acuminate; pedicel stout, red brown, 8–12 mm. long, twisted and curved; capsule pendent, not contracted below the mouth when dry, 1–5 mm. long, lid 75 mm. conic, calyptra not seen. Peristome double, teeth trabeculate. Along Nick's Creek, at foot of Pine Glade Mt. In dark, damp spring ravine, on perpendicular face of wet rock, alt. 2,600 ft. Only two capsules found with old fruit and one operculum entangled among the leaves. Differs from *Pterigophyllum lucens*, Brid. in the acute leaves with longer narrower cells, capsules shorter and broader, not contracted below the mouth when dry, lid not rostrate, blunt. This species has been confounded with the above and was distributed by Sullivant in his Musci Alleghanienses as 58 *Hookeria lucens*, and by Sull. & Lesq. Musci Bor. Am. Ed. II. 401 as *Hookeria acutifolia*, also recently as *Pterigophyllum lucens* by Dr. Barnes, collected by Prof. Underwood at Tallulah Falls, Ga. It has also been collected in Doe River Gorge, Tenn., by me 1885, and in Ohio and North Carolina by Sullivant and Lesquereux, Bolander's Californian specimens and those with blunt leaves from Idaho, Oregon, Washington, Vancouver, are all *Pterigophyllum lucens*. We have seen no specimens of the lattter from any locality east of the Rocky Mountains. (Plate 80.)

Neckera pennata (L.) Hedw. Eastern slope of White Top Mt., alt. 4,800 ft., on *Picea*. In valley between White Top Mt. and the Iron Mts., on trees, alt. 2,600 ft. Along Nick's Creek, on old trees, alt. 2,500 ft. Slopes of Pine Mt., on trees, alt. 4,000 ft. Summit of White Top, on old trees of *Cratægus punctata*, alt. 5,678 ft.

Climacium Americanum, Brid. At Falls of Holston River, on sand, alt. 2,050 ft. On limestone rocks, Hungry's Mother Creek, alt. 2,300 ft. On rocks and old stumps along Staley Creek, alt. 2,200 ft. On rocks, Pine Mt., alt. 3,500 ft.

Fontinalis Dalecarlica, Br. & Sch. In Nick's Creek, on slate rock in flowing water, alt. 2,500 ft. In Dickey Creek, on rocks in flowing water, alt. 3,000 ft.

Fontinalis Novæ-Angliæ, Sull. Dickey Creek, in flowing water, alt. 2,600 ft. White Top Creek, alt. 2,500 ft. Pine Mt., near Troutdale, alt. 3,500 ft. Also in Fox Creek, near Troutdale, alt. 3,000 ft.

Homalothecium subcapillatum, Sulliv. Summit of White Top Mt., alt. 5,678 ft., on *Cratægus punctata*, in deep woods.

Leptodon trichomitrium (Hedw.) Mohr. In valley between White Top and the Iron Mts., along White Top Creek, on trees, alt. 2,600 ft. In Hungry Hollow, on *Æsculus*, alt. 2,200 ft. On Brushy Mt., on trees, *Acer*, alt. 2,800 ft. Along Staley's Creek, near Marion, on trees, alt. 2,150 ft. At Chatham Hill Gap, Walker Mt., on trees, alt. 3,000 ft.

Leucodon brachypus, Brid. Summit of White Top Mt., on *Cratægus punctata*, alt. 5,600 ft. Along Staley's Creek, near Marion, on *Acer Saccharum*, alt. 2,300 ft. Summit of Pond Mt., east of Marion, on trees, alt. 3,400 ft. On Staley's Knob, east of Marion, on trees, alt. 2,400 ft. Banks of Nick's Creek, on trees, 2,500 ft.

Leucodon brachypus flagellatus. Branches tapering into long slender tips with small leaves, with recurved subulate tips. On trees below the house on White Top Mt., alt. 5,300 ft.; also Eagle Cliff, Roan Mt., alt. 1,600 metres (5,000 ft.). Dr. C. H. Merriam.

Leucodon julaceus (Hedw.) Sull. Summit of White Top Mt., on *Cratægus punctata*, alt. 5,678 ft. Slope of Cove Mt., near Buchanan, on *Platanus occidentalis*, alt. 1,000 ft. Slope of White Top Mt., with flagellate branches, on trees, alt. 5,000 ft.

Hedwigia ciliata, Ehrh. Slope of Brushy Mt. On sandstone, alt. 2,400 ft. On banks of Holston River, Marion. On limestone,

alt. 2,100 ft. Eastern slope of Walker Mt., Chatham Hill Gap. On sandstone rocks, alt. 3,000 ft. Along Slemp Creek, Dickey Creek and Staley's Creek. On dry rocks, alt. 2,300–3,000 ft. Summit of White Top Mt. On trees mixed with *Dicranum longifolium*, alt. 5,678 ft. On rocks. Pine Mt., alt 3,500 ft.

Hedwigia ciliata, Ehrh., var. *viridis*, Schimp. At Marion. On old roof, alt. 2,100 ft.

HEPATICÆ.*

Frullania Asagrayana, Mont. Walker Mt., Shannon Gap, alt. 2,800 ft. On sandstone rocks in shade. Dickey Creek, alt. 2,500 ft. On trees and on rocks. Comer Creek, alt. 2,500 ft. On old trees. Slopes of Pine Mt., near Troutdale, alt. 3,500 ft. On hemlocks. White Top summit, alt. 5,678 ft. On spruces. Ravine Middle Fork of the Holston River, alt. 2,000 ft. On *Thuja occidentalis*.

Frullania œolotis, Nees. Dickey Creek, alt. 2,500 ft. On wet rocks with *Metzgeria conjugata*. Shannon Gap, Walker Mt., alt. 2,800 ft. On rocks. Summit White Top, alt. 5,678 ft. On rocks. Hungry's Mother Creek, alt. 2,200 ft. On Beech trees. Falls of the Middle Fork of the Holston, alt. 2,000 ft.

Frullania Eboracensis, Gottsche. Island in the Middle Fork of the Holston River near Marion, alt. 2,100 ft. On *Platanus occidentalis* and *Salix nigra*. On cultivated cherry trees in a garden at Marion, alt. 2,100 ft. On old stumps, Walker Mt., Shannon Gap, alt. 2,800 ft. Hungry's Mother Creek, alt. 2,200 ft.

Frullania squarrosa, Nees. Island in the Holston River near Marion, alt. 2,100 ft. On old stumps with *Thelia hirtella*.

Frullania Virginica, Gottsche. Summit of White Top, alt. 5,678 ft. Slemp Creek, alt. 2,200 ft. On *Juglans cinerea*. Bear's Creek, alt. 2,200 ft.

Jubula Hutchinsiæ (Hook.) Dumort. var. *Sullivantii*, Spruce. Nick's Creek, alt. 2,300 feet. In spring. Bear Branch of Bear Creek, alt. 2,200 ft. In brook. Pond Mt., alt. 2,200 ft. On stones in brook. Banks of the Holston River at Marion, alt. 2,100 ft. On stones in water. Dickey Creek, alt. 2,500 ft. In stream.

*Determined by Dr. Alexander W. Evans.

Lejeunia clypeata (Schw.) Sulliv. Dickey Creek, alt. 2,500 ft. On trees.

Lejeunea (*Harpa-Lejeunea*) *ovata* Tayl. Dioicous, pale green, loosely cæspitose; stems prostrate, with few radicles, irregularly branched; leaves contiguous or somewhat imbricatad, obliquely spreading, convex and often reflexed at apex, ovate, mostly acute, entire, the antical margin arching over the stem but not beyond it; leaf-cells hexagonal, with slight thickenings at the angles, ocellæ 1 to 3, near the base of the leaf, elliptical; lobule ovate, inflated, strongly arched at the keel, the margin curved, mostly involute, 1-toothed at the apex and excurrent into the leaf; underleaves broadly cuneate, emarginate-bilobed with rounded lobes and sinus; female inflorescence terminal, with 1 or 2 subfloral branches; bracts erect, ovate, obtuse, the lobule plane (?) obtuse in Taylor's herbarium, and I find them to be the same in all particulars except the form of the bracteole; in Taylor's specimens this is distinctly emarginate at the apex for about $\frac{1}{5}$ its length; while in the Virginian specimens, as stated in the description, the bracteole is rounded or very slightly retuse at the apex. The species may be distinguished from our other *Lejeuneæ* by its more acute leaves and by the blunt lobes of its underleaves. (Plate 81.)

DESCRIPTION OF FIGURES.

Fig. 1. Plants, about twice natural size.
" 2. Portion of stem, antical view.
" 3. Portion of stem, postical view.
" 4. Cells from base of leaf, showing ocellæ.
" 5. ♀ inflorescence, postical view.
" 6. Bracteole, from Taylor's specimen, narrowly winged at the keel; bracteole obovate, entire, rounded or slightly retuse at the apex.

Stems about 5 mm. long, 0.05 mm. in diameter; leaves 0.30×0.15, lobule 0.15×0.08; leaf-cells in middle of leaf averaging 0.018 mm. in diameter, ocellæ 0.030×0.024; underleaves 0.08×0.01; bracts 0.50×0.25 (lobule 0.40×0.16); bracteole 0.30×0.20.

Hab., on fallen birch, White Top Creek, Mrs. Britton and Miss Vail. ♀ plants, without perianth.

This delicate little species, which has been kindly identified by Herr Stephani, of Leipzig, marks the first appearance of the subgenus *Harpa-Lejeunea* in the United States. Through the kindness of Dr. Robinson, I have been enabled to compare these specimens with the type of the species.

Radula complanata (L.) Dumort. Banks of Holston River near Kopenhaver's Mills, alt. 2,050 ft. On *Thuja occidentalis.*

Radula tenax, Lindb. Summit of White Top Mt., alt. 5,678. On rocks in shade. Nick's Creek, alt. 2,800 ft. On rocks in shade. White Rock, alt. 4,400 ft.

Radula obconica, Sulliv. Nick's Creek, alt. 2,200 ft.

Porella pinnata, Schwægr. Kopenhaver's Mill near Marion, alt. 2,000 ft. In a limestone spring, floating in the water.

Porella platyphylla, (L.) Lindb. White Top, alt. 5,300 ft. On trees. Hutton's Branch, alt. 2,200 ft. At base of trees, Banks of the Holston River near Marion, alt. 2,100 ft., on logs. Dickey Creek, alt. 2,500 ft. On trees and rocks, slopes of Pine Mt., near Troutdale, alt. 3.500 ft. On logs and trees in dense woods. Very variable in the amount of branching, sometimes very pinnate with short branches, at others almost unbranched, stems long and slender.

Blepharozia ciliaris (L.) Dumort. Pine Mt., near Troutdale, alt. 3,500 ft. On fallen logs.

Trichocolea tomentella, Dumort. White Top Creek, alt. 2,800 ft. Slopes of Pine Mt., near Troutdale, alt. 3,500 ft. Wet bank near stream. Fruiting.

Herberta adunca, S. F. Gray. Summit of White Top, alt. 5,678 ft. Abundant on wet rocks, in dense brown cushions, or on branches of *Picea rubra.*

Bazzania deflexa (Nees.) Underwood. Summit White Top, alt. 5,678 ft. Associated with *Campylopus Virginicus* and *Herberta adunca.*

Bazzania trilobata (L.) B. Gr. Dickey Creek, alt. 2,500 ft. Wet banks. Bear Branch, alt. 2,200 ft. White Top Creek, alt. 2,500 ft. White Top Summit, alt. 5,678 ft.

Lepidozia reptans, Dumort. Summit of White Top, alt. 5,678 ft. On wet rocks, in shade, with *Hypnum laxepatulum.*

Lepidozia setacea (Web.) Mitt. Nick's Creek, alt. 2,200 ft. On rotten wood. Dickey Creek. alt. 2,500 ft. On roots of trees.

Cephalozia curvifolia (Dicks.) Dumort. Dickey Creek, alt. 2,200 ft. On old logs. Summit White Top, alt. 5,678 ft. Nick's Creek, alt. 2,300 ft. On old logs. Walker's Creek, alt. 2,300 ft. Falls of the Holston, alt. 2,000 ft. On rotten logs. Bear Creek, alt. 2,200 ft.

Cephalozia multiflora, Spruce. Shannon Gap, Walker Mt., alt. 2,800 ft. Under high rocks in shade. Iron Mt. near Troutdale, alt. 3,500 ft. On the ground along roadsides.

Cephalozia Virginiana, Spruce. Summit White Top, alt. 5,678 ft. On rotten logs.

Odontoschisma Sphagni (Dicks.) Dumort. Nick's Creek, alt. 2,200 ft. On wet banks, with *Hookeria Sullivantii*, Müller. Slemp Creek, alt. 2,200 ft. Knobs near Marion, alt. 2,200 ft. On logs in damp ravine.

Kantia Trichomanis, S. F. Gray. Summit of White Top, alt. 5,678 ft. Banks of stream, slopes of Pine Mt., near Troutdale, alt. 3,500 ft. Growing with *Trichocolea tomentella.* Dickey Creek, alt. 2,500 ft. McGrady's Creek, alt. 2,300 ft.

Scapania nemorosa, Nees. White Top Creek, alt. 2,600 ft. On logs. Summit of White Top, alt. 5,678 ft. On rocks. Nick's Creek, alt. 2,200 ft. On old logs. Shannon Gap, Walker Mt., alt. 2,000 ft. On earth. Pond Mt., alt. 3,000 ft. Along roadsides. Fox Creek near Troutdate, alt. 3,500 ft. On wet logs of bridge over a stream.

Scapania undulata (L.) Nees & Mont. Pond Mt., alt. 2,500 ft. Wet rocks in stream.

Diplophyllum taxifolium (Wahl.) Dumort. Comer Creek, alt. 2,300 ft. On the ground.

Geocalyx graveolens (Schrad.) Nees. Summit White Top Mt., alt. 5,678 ft.

Lophocolea bidentata, Dumort. Banks of the Holston at Marion, alt. 2,100 ft.

Lophocolea minor, Nees. South Fork of the Holston, alt. 2,100 ft.

Plagiochila asplenioides (L.) Dumort. On rocks in bed of Nick's Creek, alt. 2,200 ft. In water, banks of the Holston River near Marion, alt. 2,100 ft.

Plagiochila porelloides, Lindenb. Nick's Creek, alt. 2,200 ft., on rocks in spring. Pine Mt., near Troutdale. alt. 3,500 ft., wet banks of streams.

Jungermannia exsecta, Schmid. Summit of White Top Mt., alt. 5,678 ft.

Jungermannia Michauxii, Web. Summit of White Top Mt., alt. 5,678 ft., wet rocks and logs, with *Dicranum fuscescens*.

Jungermannia Schraderi, Mart. Slemp Creek, alt. 2,500 ft., on old wood. Summit of White Top Mt., alt. 5,678 ft.

Marsupella emarginata, Dumort. Summit of White Top, alt. 5,678 ft., wet rocks.

Pellia epiphylla (L.) Nees. Bear Branch of Bear Creek, alt. 2,200 ft. Pond Mt., alt. 2,300 ft., wet banks of brook.

Metzgeria conjugata, Lindb. Hungry's Mother Creek, at base of trees on cliff, alt. 2,200 ft. Nick's Creek, alt. 2,200 ft., on yellow birch. Bear Branch of Bear Creek, alt. 2,200 ft. Pine Mt., near Troutdale, alt. 3,500 ft., on rocks in dense woods. Dickey Creek, on wet rocks, alt. 2,500 ft.

Aneura multifida (L.) Dumort. Nick's Creek, alt. 2,300 ft. Bear Branch, along Bear Creek, alt. 2,200 ft.

Aneura latifrons, Lindb. White Top Creek, alt. 2,500 ft., on rotten logs.

Anthoceros lævis, L. Bear Creek, alt. 2,200 ft., in burnt over patches with *Funaria hygrometrica*.

Marchantia polymorpha, L. White Top Creek, alt. 2,500 ft. Wet banks, Brushy Mt., alt. 3,000 ft.

Preissia hemisphærica (L.) Cogn. Pond Mt., alt. 2,300 ft. Along Staley's Creek.

Conocephalus conicus (L.) Dumort. Nick's Creek, alt. 2,300 ft.

LICHENES.*

Ramalina calicaris (L.) Fr. var. *fraxinea*, Fr. Pond Mt., alt. 2,800 ft. Orchard at Marion, alt. 2,100 ft. Island of Holston River, banks of Holston River, alt. 2,100 ft.

Ramalina calicaris (L.) Fr. var. *canaliculata*, Fr. Dickey Creek, alt. 2,500 ft.

Ramalina calicaris (L.) Fr. var. *farinacea*, Schær. Dickey Creek, alt. 2,500 ft.

Cetraria ciliaris (Ach.). Walker Mt., alt. 3,000 ft. Cliffs of New River, alt. 2,200 ft.

Cetraria lacunosa, Ach. Walker Mt., alt. 3,000 ft. Dickey Creek, alt. 2,300 ft.

Cetraria Oakesiana, Tuck. Pond Mt., alt. 2,800 ft.

Evernia furfuracea (L.) Mann. Walker Mt., alt. 3,000 ft. Round Top Mt., alt. 2,800 ft.

Usnea barbata (L.) Fr. The Pinnacle, Cumberland Gap, alt. 2,500 ft.

Usnea barbata (L.) Fr. var. *florida*, Fr. Walker Mt., alt. 3,500 ft. Pond Mt., alt. 2,500 ft.

Usnea barbata (L.) Fr. var. *rubiginea*, Michx. Walker Mt., alt. 3,000 ft. Pond Mt., alt. 2,800 ft.

Usnea angulata, Ach. White Top Mt., alt. 5,678 ft.

Alectoria jubata (L.) var. *chalybeiformis* (Ach.) Dickey Creek, alt. 2,500 ft. Summit of White Top Mt., alt. 5,678 ft.

Alectoria, imperfect. Walker Mt., alt. 3,000 ft.

Theloschistes concolor, Dicks. East slope of White Top Mt., alt. 5,000 ft.

Parmelia perlata (L.) Ach. Walker Mt., alt. 3,400 ft.

Parmelia latissima, Fée. Nick's Creek, alt. 2,300 ft.

Parmelia perforata (Jacq.) Ach. Summit of White Top Mt., alt 5,678 ft. Nick's Creek, alt. 2,500 ft. Cliffs of New River, alt. 2,200 ft. Reed Creek, alt. 2,100 ft.

Parmelia cetrata, Ach. Slope of White Rock Mt., alt. 4,000 ft. Walker Mt., alt. 3,000 ft.

*Determined by Dr. J. W. Eckfeldt.

Parmelia crinata, Ach. Along Reed Creek, alt. 2,100 ft.

Parmelia tiliacea (Hoffm.) Floerk. Island of Holston River, alt. 2,100 ft.

Parmelia tiliacea (Hoffm.) Floerk, var. *sublævigata*, Nyl. Summit of Pine Mt., alt. 4,500 ft. Pond Mt., alt. 2,800 ft.

Parmelia Borreri, Turn., var. *rudecta*, Tuck. Cliffs of New River, alt. 2,200 ft. Along Reed Creek, alt. 2,100 ft. Everywhere around Marion, alt. 2,100 ft.

Parmelia saxatilis (L.) Fr. Walker Mt., alt. 3,000 ft.

Parmelia physodes (Ach.) Nyl. Walker Mt., alt. 3,000 ft. Summit of White Top Mt., alt. 5,678 ft.

Parmelia physodes (L.) Ach. var. *enteromorpha*, Tuck. Summits of White Top Mt., alt. 5,678 ft., and Mt. Rogers, alt. 5,719 ft.

Parmelia pertusa (Schrank.) Schaer. Foot of Pine Mt., alt. 3,000 ft.

Parmelia stygia (L.) Ach. Summit of White Top Mt., alt. 5,678 ft.

Parmelia caperata (L.) Ach. Walker Mt., alt. 3,000 ft. Slope of White Rock Mt., alt. 4,000 ft. Summit of White Top Mt., alt. 5,678 ft. Cliffs of New River, alt. 2,200 ft. The Pinnacle, Cumberland Gap, alt. 2,500 ft.

Physcia hypoleuca (Muhl.) Tuck. Summit of White Top Mt., alt. 5,678 ft.

Physcia leucomela (L.) Michx. East slope of White Top Mt., alt. 5,000 ft. Pond Mt., alt. 2,500 ft.

Physcia aquila (Ach.) Nyl. Near Marion, alt. 2,100 ft.

Physcia stellaris, L. Island of Holston River, alt. 2,100 ft.

Physcia setosa (Ach.) Nyl. Hungry's Mother Creek, alt. 2,000 ft.

Pyxine sorediata, Fr. Summit of White Top Mt., alt. 5,678 ft. Mt. Rogers, alt. 5,719 ft. Along Holston River, alt. 2,100 ft.

Umbilicaria Dillenii, Tuck. Slope and summit of White Rock Mt., alt. 3,000–4,400 ft. Summit of White Top Mt., alt. 5,678 ft. Peak Mt., alt. 2,200 ft.

Umbilicaria pustulata (L.) Hoffm. Summit of White Top Mt., alt. 5,678 ft. Dickey Creek, alt. 2,300 ft.

Sticta amplissima (Scop.) Mass. Summit of White Top Mt., alt. 5,678 ft. Cliffs of New River, alt.

Sticta aurata (Sm.) Ach. Summit of White Top Mt., alt. 5,678 ft.

Sticta pulmonaria (L.) Ach. Walker Mt., alt. 3,000 ft. Pond Mt., alt. 2,500 ft.

Nephroma Helveticum, Ach. Slope of White Rock Mt., alt. 4,000 ft. Walker Mt., alt. 3,000 ft.

Nephroma lævigatum, Ach. Summit of Pine Mt., alt. 4,500 ft.

Peltigera apthosa (L.) Hoffm. Along Walker's Creek, alt. 2,500 ft. Nick's Creek, alt. 2,500 ft. Cliffs of New River.

Peltigera polydactyla, Neck. Nick's Creek, alt. 2,300 ft.

Peltigera rufescens (Neck.) Hoffm. Walker Mt., alt. 3,000 ft. Along Holston River, alt. 2,100 ft.

Peltigera canina (L.) Hoffm. Nick's Creek, alt. 2,300 ft. Along Holston River, alt. 2,100 ft.

Physma luridum, Mont. Dickey Creek, alt. 2,300 ft. Summit of White Top Mt., alt. 5,678 ft.

Pannaria lanuginosa (Ach.) Koerb. Walker Mt., alt. 3,000 ft. Near Marion, alt. 2,100 ft.

Pannaria leucosticta, Tuck. Along Holston River, alt. 2,000 ft.

Pannaria nigra (Huds.) Nyl. Limestone ledges, near Wytheville, alt. 2,200 ft.

Collema cyrtaspis, Tuckm. Peak Creek Mt., alt.

Leptogium pulchellum (Ach.) Nyl. Dickey Creek, alt. 2,300 ft.

Leptogium tremelloides (L. fils.) Fr. Near Marion, along Holston River, alt. 2,100 ft. Reed Creek, cliffs of New River, alt.

Lecanora pallida (Schreb.) Schær. Summit of White top Mt., alt. 5,678 ft. Pond Mt., alt. 2,800 ft. Banks of Holston River, alt. 2,100 ft.

Lecanora sub-fusca (L.) Ach. Along Holston River, alt. 2,100 ft. The Pinnacle, Cumberland Gap, alt. 2,500 ft.

Lecanora Hageni, Ach. Vicinity of Marion, alt. 2,100 ft.

Lecanora elatina, Ach. var. *ocræphæa*, Tuck. Summit of White Top Mt., alt. 5,678 ft.

Lecanora pallescens (L.) Schær. Near Marion, alt. 2,100 ft.

Lecanora cinera (L.) Sommerf. Limestone cliffs of Holston River at Marion, alt, 2,100 ft.

Pertusaria velata (Turn.) Nyl. Summit of White Top Mt., alt. 5,678 ft. Orchard at Marion, alt. 2,100 ft. Reed Creek near Wytheville, alt. 2,000 ft.

Pertusaria communis, D. C. Along Reed Creek, near Wytheville, alt. 2,000 ft.

Pertusaria leioplaca (Ach.) Schær. Pond Mt., alt. 2,500 ft. The Pinnacle, Cumberland Gap, alt. 2,500 ft. Reed Creek, near Wytheville, alt. 2,000 ft.

Urceola scruposa (L.) Nyl. Walker Mt., alt. 3,500 ft.

Cladonia decortia, Floerk. Near Marion, alt. 2,100 ft.

Cladonia pyxidata (L.) Fr. Slemp Creek, alt. 2,200 ft. Walker Creek, alt. 2,300 ft. Nick's Creek, alt. 2,300 ft.

Cladonia fimbriata (L.) Fr. Iron Mt., alt. 3,000 ft.

Cladonia squamosa, Hoffm. Dickey Creek, alt. 2,300 ft. Pond Mt., alt. 2,800 ft.

Cladonia furcata (Huds.) Fr., var. *racemosa*, Tuck. Dickey Creek, alt. 2,300 ft. Walker Mt., alt. 3,000 ft.

Cladonia rangiferina (L.) Hoffm. Dickey Creek, alt. 2,800 ft. Summit of White Top Mt., alt. 5,678 ft.

Cladonia cristatella, Tuck. Slemp Creek, alt. 2,300 ft. Nick's Creek, alt. 2,300 ft.

Bæomyces roseus, Pers. East slope of White Top Mt., alt. 5,000 ft. Pond Mt., alt. 2,800 ft.

Lecidea albo-cærulescens Fr. The Pinnacle, near King Solomon's Cave, Cumberland Gap, alt. 2,500 ft.

Lecidea enteroleuca Fr. G. var. *æquata*. Grayson, on New River, alt. 2,100 ft.

Buellia parasema (Ach.) Th. Fries. Summit of White Top Mt., alt. 5,678 ft.

Arthonia tædiosa (Nyl.) Fr. Banks of Holston River, alt. 2,100 ft.

Arthonia spectabilis, Fl. Near Marion, alt. 2,100 ft.

Calicium trichiale (Ach.) Ait. Orchard at Marion, alt. 2,100 ft.

Endocarpon miniatum (L.) Schær. Dickey Creek, alt. 2,500 ft. Holston River near Marion, alt. 2,100 ft.

Endocarpon miniatum var. *aquaticum*, Schær. Hungry's Mother Creek, alt. 2,200 ft.

Normandia lacte-virens (Turn.) Ait. Dickey's Creek, alt. 2,500 ft.

Trypethelium virens, Tuck. S. Ait. Nick's Creek, alt. 2,300 ft.

Verrucaria fuscella Fr. Round Top near Seven-Mile Ford, alt. 2,800 ft.

MYXOMYCETES.

Fuligo varians, Sommf. Marion.

Stemonitis fusca, Roth. On rotten wood. Pond Mt.

ALGÆ.

Sirosiphon pulvinatus, Breb. Dickey Creek.

Gomphonema constricta, Ehr. Dickey Creek.

Synedra Ulna (Nitzsch.) Ehrenb. Dickey Creek.

Fragilaria Harrisonii, Gum. Dickey Creek.

Cocconeis Pediculis, Ehr. Dickey Creek.

Chroolepus aureus (L.) Kg. Holston River.

Lemanea torulosa (Roth.) Aq. Dickey Creek.

FUNGI.

Phragrindium subcorticatum (Schrank) Mill. On *Rosa* sp. Marion.

Puccinia Anemones, Pers. On *Anemone trifolia*. White Top.

Cæoma luminatum, Lk. On leaves of *Rubus villosus*. Marion.

Rœstelia lacerata (Sch.) Fr. ? On leaves of *Cratægus*. Bristol.

Æcidium Violæ, Schum. On *Viola hastata*. White Top.

Æcidium Acteæ (Opiz) Wallr. On leaves of *Actæa alba*. Marion.

Æcidium Clematidis, D.C. On *Clematis Virginiana*. Marion.

Æcidium Sambuci, S. On leaves of *Sambucus Canadensis*. Bristol.

Erysiphe lamprocarpa, Lev. On *Hydrophyllum Virginianum*. Marion.

Asterina Leemingiæ, E. & E. Proceed. Acad. Nat. Sci. Phila. 128 (1893). On leaves of *Galax aphylla*, Marion.

Myceliu mhypophyllous, forming black, orbicular patches 2–4 mm. in diameter, composed of superficial radiating dendroid-branched hyphæ furnished with globose hyphopodia, 8–10 μ. in diameter. Perithecia numerous, seated on the hyphæ, flattened scutellate, of radiate cellular structure, about 150 μ. in diameter, with a papilliform ostiolum which is soon deciduous, leaving the perithecium perforated and convex. Asci oblong, 35–40×20–24 μ., aparaphysate, 8-spored. Sporidia crowded oblong-fusoid, yellowish hyaline, uniseptate, scarcely constricted, slightly curved, 18–22×5–6 μ. (Plate 82.)

Has the habit of *Dimerosporium orbiculare*, B. & C., but differs in several respects. Other localities may be given: Brushy Mt., Va., Table Rock, N. C., 1891, John K. Small; Dickey Creek, Chas. Scott. The species is named in honor of Miss Helena D. Leeming.

I have received from Prof. Farlow sterile specimens of this fungus named by Curtis *Glenospora melioloides*, B. & C. There is no question but that the specimens are of the same fungus; Cooke claims that *G. melioloides* is a misname for *G. Curtisii*, B., in which case the fungus was probably thought to be another species and so labelled without further scrutiny.

Mr. Massee reports that specimens of *A. Leemingiæ*, E. & E., sent to him March 7, 1893, "Are quite distinct from *G. melioloides*, B. & C., and *G. Curtisii*, B." What the true status of the question is will probably soon come to light. In the meantime we prefer to maintain the specific name quoted above. S. E. J.

Asterina sp. indet. On petioles of *Galax aphylla*, Brushy Mt. Belonging to type B. Journal of Mycology 1: 135 (J. B. E.).

Dimerosporium Galactis, E. & E., n. sp.

Penicillium candidum, Lic. On *Lemanea torulosa*, Dickey Creek.

Hypoxylon cohærens, Pers. On tree stumps, White Top.

Marasmius rotula, Scop. On decorticated bark, White Top.

Lentinus Lecontei, Fr. White Top.

Polyporus hirsutus, Fr. Top of Pond Mt.

Polyporus versicolor, Fr. Marion.

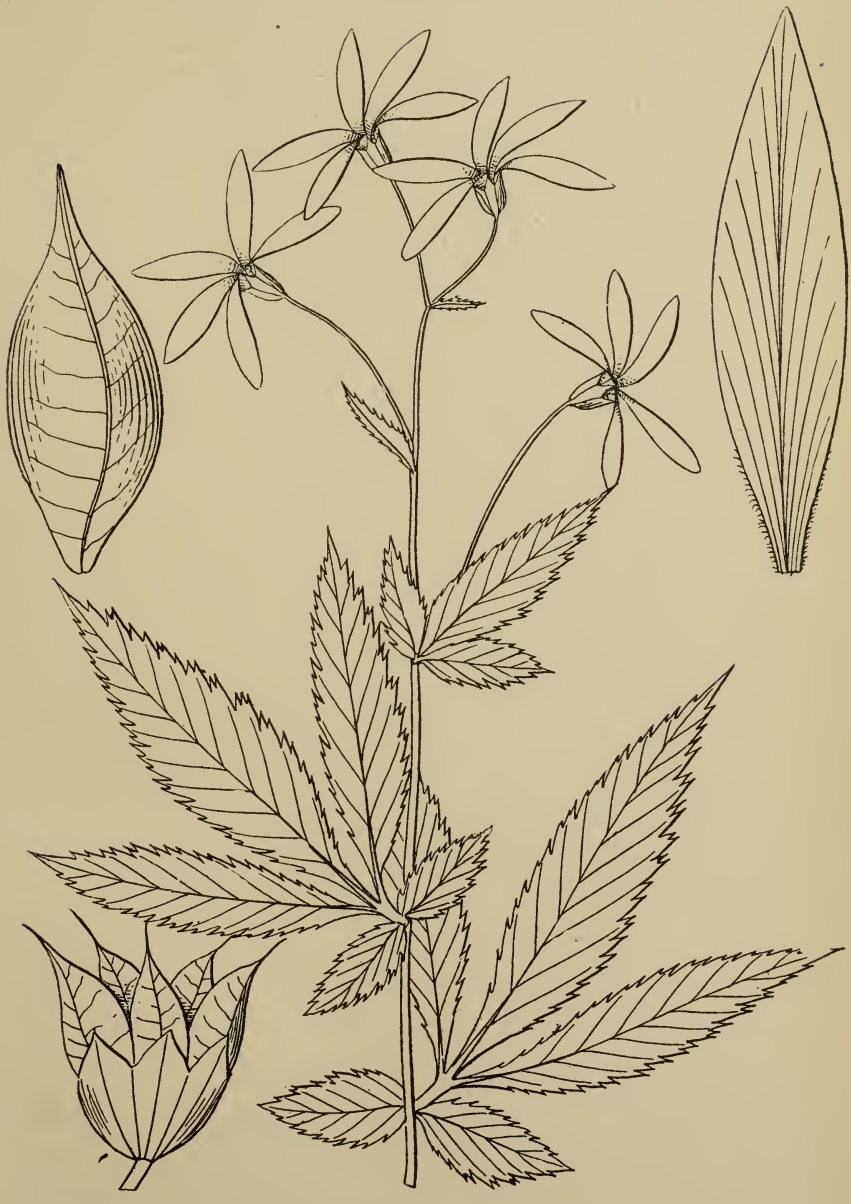
Irpex Tulipiferæ, Fr. On cherry trees, Marion.

Stereum complicatum, Fr. Marion.

Stereum versicolor, Fr. Marion.

TRIFOLIUM VIRGINICUM, SMALL.

PORTERANTHUS TRIFOLIATUS (L.) BRITTON.



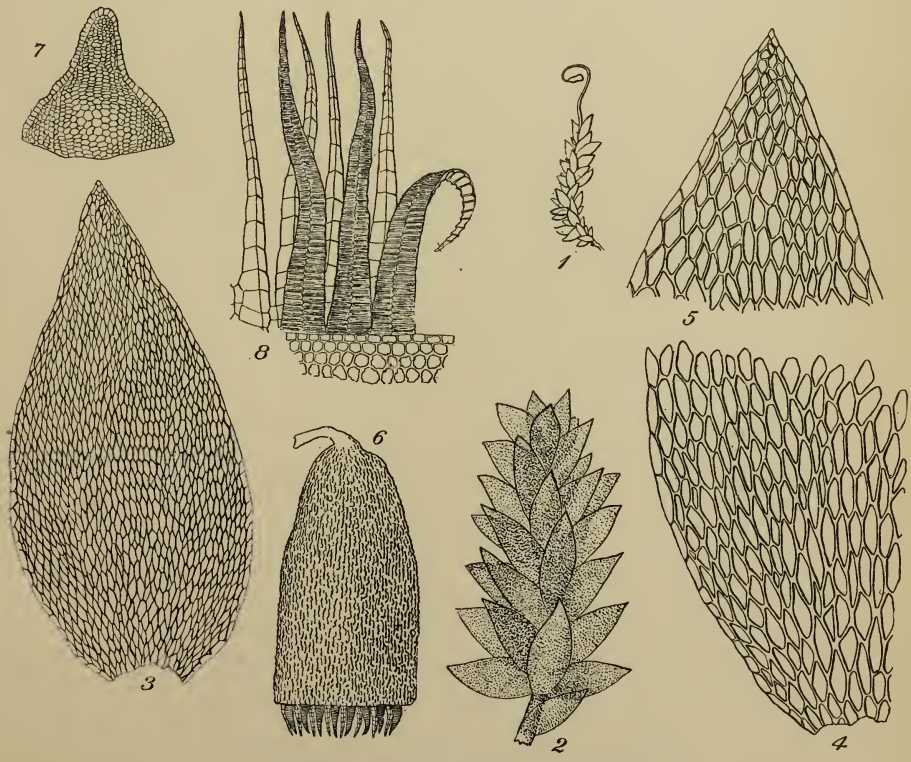
PORTERANTHUS STIPULATUS (MUHL.) BRITTON.

VIBURNUM FERRUGINEUM (T. & G.) SMALL.

RUDBECKIA BRITTONII, SMALL.

[Plant one-half natural size.]

ZYGODON VIRIDISSIMUS (DICKS.) R. BR.



HOOKERIA SULLIVANTII, C. MUELL.

LEJEUNEA OVATA, TAYL.

ASTERINA LEEMINGIÆ, ELLIS & EVER.

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